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A total of 51 health care executives from the Navy, Army, Air Force, Department of Veterans Affairs and civilian non-government sectors, as well as nine Marine Corps/Navy line community General/Flag Officers, were surveyed to: (a) determine if they perceived a need for more effective leadership in the health care sector, (b) establish what traits, skills, knowledge, behaviors and activities health care executives should possess, exhibit and engage in to be more effective leaders, (c) determine which of these desired characteristics were deficient in the leaders represented in this study, (d) determine how NAVMED personnel with leadership potential may be identified and their leadership skills developed.

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Group responses, analyzed using descriptive statistics, indicated: (a) A need for more effective leadership within NAVMED and the other health care groups under study, (b) that personal characteristics contribute most to a Commanding Officer's ability to provide effective leadership within a Navy treatment facility, (c) that the leadership attributes found most lacking in NAVMED executives are largely, interpersonal skills, (d) that the use of challenging job assignments is an effective method of identifying leadership potential, (e) that the leadership skills NAVMED executives require can best be developed through experience.

The findings strongly suggest that NAVMED must place additional emphasis on the leadership development process and that NAVMED must become more actively involved in the development of subordinates.

B

20 July 1990

From: LT Daniel G. Dominguez, MSC, USN
To: Residency Committee, U.S. Army-Baylor University Graduate Program in Health Care Administration (HSHA-IHC), Academy of Health Sciences, U. S. Army, Fort Sam Houston, TX 78234-6100

Subj: SUBMISSION OF GRADUATE MANAGEMENT PROJECT

Ref: (a) PHONCON Army-Baylor (PJ Hall)/ LT Dan Dominguez of 16 July 1990

Encl: (1) Graduate Management Project (GMP)

1. In accordance with the most recent Administrative Residency Manual, subject project is submitted as required. As discussed during reference (a), Rear Admiral Loar's comments regarding the GMP will be included in his endorsement of the final residency report.

Daniel G. Dominguez

IDENTIFICATION AND DEVELOPMENT OF LEADERS IN THE NAVY MEDICAL DEPARTMENT

Graduate Management Project

Submitted to the Faculty of

Baylor University

In partial fulfillment of the

Requirements for the degree

of

Master of Health Administration

by

Lieutenant Daniel G. Dominguez, MSC, USN

July 1990

Running head: IDENTIFICATION AND DEVELOPMENT OF LEADERS

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And finally to my wife Sam, and our children, Daniel, Becky, and Ben, without whose support and understanding I would not have been able to complete this study.

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ABSTRACT

The purpose of this study was to determine how the Navy Medical Department (NAVMED) could identify and develop future leaders to improve the management of its treatment facilities.

A total of 51 health care executives from the Navy, Army, Air Force, Department of Veterans Affairs, and civilian non-government sectors, as well as nine Marine Corps/Navy line community General/Flag Officers, were surveyed to: (a) determine if they perceived a need for more effective leadership in the health care arena, (b) establish what traits, skills, knowledge, behaviors and activities health care executives should possess, exhibit and engage in to be more effective leaders, (c) determine which of these desired characteristics were deficient in the leaders represented in this study, (d) determine how NAVMED personnel with leadership potential may be identified and their leadership skills developed.

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Group responses, analyzed using descriptive statistics, indicated: (a) A need for more effective leadership within NAVMED and the other health care groups under study, (b) that personal characteristics contribute most to a Commanding Officer's ability

to provide effective leadership within a Navy treatment facility, (c) that the leadership attributes found most lacking in NAVMED executives are largely, interpersonal skills, (d) that the use of challenging job assignments is an effective method of identifying leadership potential, (e) that the leadership skills NAVMED executives require can best be developed through experience.

The findings strongly suggest that NAVMED must place additional emphasis on the leadership development process and that NAVMED leaders must become more actively involved in the development of subordinates.

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I. INTRODUCTION

Conditions that Prompted the Study

The Navy is responsible for providing health care to 2.7 million beneficiaries (RAPS, 1989). However, according to a Department of the Navy Medical Blue Ribbon Panel Report, "Peacetime assets and management have not maintained the capability to treat this population in Navy facilities. Accordingly, patient workload has [increasingly] shifted from in-house to CHAMPUS" (Blue Ribbon, 1988, p. ES-3). The report supports this statement with statistics indicating that Navy medical treatment facility outpatient visits have decreased 21%, and admissions 17%, between fiscal years 1985 and 1988. During the same period, Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) outpatient visits are reported to have increased 78% and admissions 42% (Blue Ribbon, 1988).

The report identified the following as major contributors to this dilemma: (a) The composition of the active duty force, has changed to include more members with dependents. (b) The military retirees and their dependents, are becoming older, greater in number, and are requiring more intensive (and expensive) health care. (c) Quality assurance requirements, (brought about by allegations of poor quality health care in the early 1980's) have reduced workload capability as health care resources have not been increased to support quality assurance activities. (d) The dual

mission of providing operational medical support and peace time beneficiary care. (e) The increasing cost of delivering health-care (which has been significantly higher than increases in the Consumer Price Index). (f) Advancements in technology, that require the Navy to make continual investment in expensive technology in order to meet ever increasing standards of care.

The above factors combine to change, increase and complicate the demands placed on the Navy health care system. These demands, coupled with the increased costs of providing health care (which have not been offset by proportionate increases in funding) have resulted in the need to better manage our resources, the need to implement change through innovation--the need for more leadership.

Since the mid 1970's, the Navy line community has been increasingly critical of the leadership/management development process used to prepare Medical Department Officers for command and other key managerial positions (Officer, 1985; Blue Ribbon 1988). Expressed by groups within the Navy Medical Department as well, the criticism appears to be centered a ound the perception that the Navy Medical Department is preoccupied with hospital-based medical practice and has responded less than adequately to the peace time need for support of Navy and Marine Corps operational forces (Officer, 1985).

In 1982, as part of the restructuring of the Navy Medical Department, programs were put into place to identify and train

individuals for top leadership and management positions. No longer would "a narrow, clinical-only background [suffice]" (Officer, 1985, p. I-5). "Leaders [would be required to] have a broad perspective of the Medical Department and the Navy and, in some cases, the Federal Government and international affairs" (Officer, 1985, p. I-5).

The Leadership and Management Education and Training (LMET) program was designated as the vehicle through which leadership and management skills would be developed. The LMET program consists of a series of courses ranging from entry level training for newly commissioned officers to advanced training for those selected for command. Also, to ensure that future leaders would have the experience base necessary to effectively lead and manage Navy Medical Department activities, an Officer Career Guide was published in 1985. The guide suggests career paths for members of each of the four Navy Medical Department Corps and recommends specific job assignments and educational programs to adequately prepare for top leadership and managerial positions.

Though the recommendations provided in the Officers Guide are detailed and well thought out, they remain just that--recommendations. One of the major findings of the Medical Blue Ribbon Panel is that Navy Medicine has no formal career development plan. Specific Blue Ribbon Panel recommendations are that Navy Medicine: "Develop leadership/management skills and

training requirements for a formal command development process, and [formally] establish career paths for leadership positions [that require] experience" (Blue Ribbon, 1988, p. ES-12).

In proactively addressing the above recommendations, Rear Admiral Charles Loar, while Commander of the Naval Medical Command, Mid-Atlantic Region, directed that Commanding Officers and Officers-in-Charge of each of the fifteen commands within the Mid-Atlantic Region provide their "views, perspectives, ideas and needs" (Loar, 1989) concerning the requirements for leadership positions within the Navy Medical Department. Admiral Loar's goal was to develop a "standard" that would provide, (a) Medical Department officers a clear step-wise path to follow during their careers, and (b) Commanding Officers a tool for use when assigning officers to specific duties, and when discussing future officer assignments with the Naval Military Personnel Command.

The fifteen commands solicited provided considerable input, the majority of which addressed the administrative skills required of our top medical department leaders. There were also several comments and recommendations provided concerning the need for leadership development.

At this point in the Career Guide development process, further information is required concerning the leadership requirements of our top executive positions. This graduate management project is being conducted as part of a continuing

effort to develop a useful Officer Career Guide for the Navy Medical Department, by gathering and analyzing information related to the leadership development process as it applies to the Navy Medical Department.

Statement of the Problem

How should the Navy Medical Department identify and develop its future leaders in order to improve the management of Navy Medical Treatment Facilities?

Literature Review

Background

Immediately after World War II and continuing through the early 1970's, the health care industry operated in an environment of seemingly unlimited resources and limited competition. During this time physicians and health care administrators enjoyed a relationship that was mutually beneficial. It was a era during which physicians could concentrate on treating patients, and administrators simply had to ensure that physicians had all the necessary tools (Fried, 1986). In this time period too much leadership could actually create problems by disrupting efficient routines. What was desired was stability and control (Kotter, 1988). The maxim, "If it ain't broke, don't fix it", was in vogue.

Times have changed! We now function in a health care environment controlled by prospective payment schemes and

increasing competition. In today's environment the very survival of health care institutions depends on "unprecedented leadership--beginning with the CEO", not on buzz words, new systems, and organizational restructuring (O'Donnell, 1988, p. 33). Hospital leaders are hearing more frequently the lament that it is getting harder to find hospital CEO's who seem willing or able to lead (Kinzer, 1986). H. Ross Perot contends that our country is crying out for leadership at the business and political level, maintaining that, "Lack of leadership is the biggest problem we have in making this nation competitive" (as quoted in Kotter, 1988, p. 1).

Why is leadership so important today?

The delivery of medicine is more complex and the environment more turbulent and uncertain than in the past. Complex working environments require additional leadership rather than stewardship and managership, (Kotter, 1988). This statement is supported by several researchers and leadership experts who indicate that leadership becomes more important as the environment becomes more tumultuous and complex. According to Lippitt, the need to: maintain quality with fewer resources, integrate increasingly diverse and complex technology, and involve more people in problem solving, has effected changes in leadership roles (as quoted in Burns & Becker, 1988). In addition to the adaptive changes required by technology, a society with new definitions of

work, and employees who are more confident and feel entitled to, rather than grateful for, their jobs have generated the need for more leadership (Maccoby, 1981).

Demands for Different Types of Leaders.

Not only is more leadership required, but there appears to be a need for a different type of leader. The uncertainty and complexity of today's health care environment is forcing organizations to reconsider traditional strategies, policies, and routine methods of doing business (The current interest in the philosophy of Total Quality Management is a clear indication of this phenomenon). Determining appropriate actions in an environment of uncertainty, and then getting others to accept new approaches to problems, demands skills that most managers simply did not need in the relatively calm 50's, 60's and early 1970's Kotter, 1988 p. 9).

According to Harrington (1988), the ability and leadership style of the CEO should be closely matched to the needs of the organization to ensure the success of both. Some leaders can adapt to the changing needs of organizations and certainly senior leaders recognize the need for adaptation. Lieutenant General Cooper, United States Marine Corps, Retired, contends that leadership style is not necessarily constant, "It must adapt to the mission, resources, dangers and whatever is necessary to get the job done" (Cooper, 1988 p. 30). Leaders must be prepared to

change everything except their beliefs in order to get the job done.

In today's environment, organizations need more than technical expertise, administrative ability, and traditional (especially bureaucratic) management from their leaders. They need people with broad vision and self-confidence. Without self assured visionary leadership, organizations, including hospitals, will not prosper--some will not even survive (Kotter, 1988; Mullner & Whiteis, 1989).

Given that a "new" type of leader is required for today's organizations, what types of knowledge and special skills should the leader possess? What attributes--traits, values, beliefs and behaviors should the leader exhibit? Before addressing these questions one must first confront the notion of leadership itself.

What is leadership? How does it differ from management? A discussion of leadership theories.

The question of "What is leadership?" is not a new one. Leadership has been studied extensively over the past fifty years and there is still no definitional consensus (Bass, 1981). Scholars have approached the description and analysis of leadership by emphasizing a variety of its aspects, thinking of it in terms of what leaders do, or as a cluster of personal attributes. Others see it as a group process; still others, as a means of facilitating goal achievement--as the interaction between

superiors and subordinates, or as a means of persuading or exercising influence. There are those that hold that the ability of the leader to deal with non-followers is the essence of leadership. Some scholars maintain that leadership is ascribed and exists only in the eye of the beholder. Peter Drucker contends that a leader is simply someone who has followers (Drucker, 1988). Others, according to Buck & Korb, (1981) insist that leadership defies explication and must remain the most baffling of arts.

The search for a unique set of traits associated with leadership began with biographical studies of prominent political/military leaders. Such studies were soon complemented by more formal searches for traits that distinguished leaders from followers and effective from ineffective leaders, (Puryear, 1971). The ancient "great man" theory of leadership has had philosophers and theorists arguing whether history made such men as Alexander the Great, George Washington or Napoleon or if such men made history. These debates sparked attempts to identify and examine the traits that make or differentiate leaders from the masses: intelligence, size, sociability, creativity, persistence, appearance, courage, enthusiasm, knowledge, and integrity. Studies have identified the attributes of intelligence, social maturity, strong inner motivation and drive, and a thorough understanding of people and interpersonal relations as traits that

appear characteristic of successful leaders (Ross, 1988). Bass, (1981) lists 16 personality traits that have been positively correlated with leadership. Among these traits are dominance and self-confidence, emotional control, independence, and creativity. Social skills, such as sociability and administrative ability have also been identified.

On the other hand, Burns and Becker (1988) report that many studies have provided negative evidence for these relationships. They further state that there is evidence which suggests that such traits have a limited ability to explain differences in leadership effectiveness. Some researchers maintain that leadership is more a relationship between leader and follower than a personal attribute, and that it is possible to lead only if there is a consensus of people who want to go in the same direction you want to take them (Bisesi, 1983; Buck & Korb 1981; Drucker, 1988; Kinzer 1986). Sam Levey, editor of Hospital and Health Services Administration, states that, "Leadership is not simply a quality that inheres in certain special people; it is a process that grows out of a serendipitous combination of people, place, time, and events", (Levey, 1989, p. 136). From these statements one could conclude that the traits associated with leadership may be largely contingent upon the nature of the task, the goal pursued, and the characteristics of group members.

The lack of a definitional consensus of leadership is further aggravated by the tendency of many organizations (primarily the military, but also corporate enterprise and graduate schools) to use the terms leadership and management synonymously, (Buck & Korb, 1981). Bennett & Tibbitts (1989) contend that leadership differs from managing, but insist that leadership is needed at every level in which managing is exercised.

The Difference Between Management and Leadership

According to John Kotter, Harvard Business School Professor, "At its core, management is the process of planning, budgeting, organizing, and controlling some activity through the use of (more or less) scientific principles and authority" (Kotter, 1988, p. 26). Burns and Becker (1988) further distinguish managership from leadership by stating that "managership is the efficient solution of today's problems, while leadership is the identification of tomorrow's problems and the establishment of mechanisms today that will be needed to solve them" (p. 145).

Notable researcher Warren Bennis says that "managers are the people who do things right and leaders are the people who do the right things" (Bennis, 1989b, p. 18).

Leadership Operationally Defined

If leaders are people who do the "right things" as Bennis suggests, what are the right things? We must first grant that more effective leadership, though it has been studied, defined and

explained in many ways, is necessary in today's health care environment. Allowing that it is, we must next define leadership and then determine what it is that leaders are supposed to do.

For the purposes of this study, leadership is defined as the process of moving a group (or groups) of people in some direction through (mostly) non-coercive means. Effective leadership is defined as that leadership which moves people in a direction that is genuinely in their real long-term best interests (Kotter, 1988, p. 16).

In determining what activities leaders must undertake to be effective, we can look to Burns and Becker (1988) who summarize leadership activities as follows:

> The key activities of leadership include the articulation and inculcation of organizational values, the enactment of a social structure that embodies those values, the definition of the organization's mission, and the elevation of employees to a higher level of morality and motivation. (p. 167)

Guided by the leadership endeavors suggested by Burns and Becker, it is necessary to determine which attributes, behaviors and activities a heath care leader must possess, exhibit and engage in, in order to lead effectively.

Current Study

Purpose

The primary purposes of this descriptive study are threefold. First, establish what traits, skills, knowledge, behaviors and activities Navy Medical Department executives should possess,

exhibit and engage in to be more effective leaders. Second, determine how Navy Medical Department personnel with leadership-potential may be identified. Third, determine how leadership skills may be developed.

The subordinate objectives of this study are to:

1. Determine if executives in the health care field support leadership researchers, theorists and experts in their contention that there is a need for more effective leadership in the health care delivery system as a whole.

2. Determine if Navy health care executives perceive a need for more effective leadership within the Navy Medical Department.

3. Determine if selected senior Marine Corps and Navy line community officers perceive a need for more effective leadership within the Navy Medical Department.

4. Determine if the leadership characteristics required of Navy Medical Department leaders are the same for other selected segments of the health care field.

5. Determine if the leadership characteristics identified by Navy Medical Department leaders are the same as those identified by senior Marine Corps and Navy line community officers.

6. Identify perceived leadership shortcomings within the Navy Medical Department, and other selected segments of the health care field, as identified by the health care executives surveyed.

7. Identify specific Navy Medical Department leadership shortcomings, as perceived by the Marine and Navy line community.

8. Identify methods of distinguishing personnel with leadership potential that are appropriate for use within the Navy Medical Department.

9. Identify methods or programs for leadership development that are appropriate for use within the Navy Medical Department.

10. Offer recommendations for improving or enhancing the process used to identify leadership potential and the methods used to develop leadership in the Navy Medical Department.

II. METHODS AND PROCEDURES

Data regarding the factors which influence leader effectiveness, identification, and development was obtained through a review of the literature and the development and administration of a survey instrument. Response data was analyzed to obtain information concerning: (a) general leadership effectiveness (b) leadership characteristic requirements, (c) leadership shortcomings, (d) methods of identifying leadership potential, (e) methods of leadership development, and (f) demographic data (e.g. sex, age, education, organization, position, years of experience, et cetera).

Population Studied

The study targeted six separate groups. Five of the groups (Army, Navy, Air Force, Department of Veterans Affairs and

civilian non-government) were comprised of 51 executives in the health care management field. The sixth group consisted of nine senior Marine Corps and Navy line community officers, who had been professionally associated with Navy Medical Department leaders. The non-medical leaders were surveyed to determine the degree of congruence between their attitudes towards health care leadership, and those of executives working in the health care field.

Within the text of this study, (to exclude certain Tables) NAVMED will hereafter refer to Navy Medical Department, Army to Army Medical Department, Air Force to Air Force Medical Department, DVA to Department of Veterans Affairs, Civilian to civilian non-government, and Line to Marine Corps and Navy line community officers. Table 1 provides a breakdown of survey respondents by group.

Table 1
Respondents by Target Group

	Number	Percent
Army	11	18.3%
Air Force	8	13.3%
Navy Medicine	11	18.3%
Civilian non-government	10	16.8%
Line (Navy and Marine)	9	15.0%
Department of Veterans Affairs	11	18.3%
TOTAL	60	100.0%

In this study health care executives were operationally defined as civilian hospital: chief executive officers (CEOs), administrators, presidents, and others holding equivalent positions; Department of Veteran Affairs Medical Center Directors, and military medical treatment facility (MTF)/dental treatment facility (DTF), commanding officers/commanders. Senior officers were defined as Navy line community Flag officers and Marine Corps General Officers (Grades 07 and 08) familiar with Navy Medical Department Commanding Officers.

Sample Selection and Size

Representativeness of the survey sample was considered more important than randomness in this study. Therefore, a combination of quota and purposive sampling, as described by Kerlinger (1986) and Emory (1985), was used to obtain the survey sample. Quota sampling is used when equal representation of different groups is required for comparison. It was decided that each of the six target groups should be equally represented in the survey and that a sample of ten people per target group would be desirable.

The use of purposive sampling is appropriate when the need for a representative sample is required. As the study required respondents to provide their opinions regarding effective leadership, it seemed appropriate that those surveyed should be representative of effective leaders. Therefore, the samples were

selected by four health care executives, each widely known and respected within his organization. The Army sample was selected by an Army Medical Service Colonel and the Air Force sample by an Air Force Medical Service Corps Colonel. The DVA sample was selected by an experienced Medical Center Director. The Navy Medical, Line, as well as, the Civilian respondents, were selected by a Navy Medical Service Corps Admiral who has held senior executive positions in the civilian sector, and worked closely with non-medical Navy Flag and Marine Corps General Officers. Each of the four "selection officials" was briefed on the purpose of this study and instructed to provide a list of at least ten potential respondents from their organizations. Each of the proposed survey participants was to be characterized as an exemplary and effective leader by his/her respective organization.

Survey Instrument Development

As previously stated, the survey instrument was developed from a review of the literature. The review included, various leadership and management texts, journal articles, training guides and case studies, existing survey instruments, as well as personal interviews with leaders in the health care field.

The literature review provided a list of the leadership characteristics considered most important by subject matter

experts. These were roughly divided into four categories (domains): (a) traits, (b) interpersonal skills and behaviors, (c) activities, and (d) knowledge. Appendix A provides a detailed list of the attributes with definitions as appropriate. Table 2 presents a summary of these attributes by domain.

Table 2
Attributes Identified as Being Characteristic of Effective Leaders

PERSONAL TRAITS	BEHAVIORS AND INTERPERSONAL SKILLS
Intellectual capacity	Ability to Communicate
Judgement	Ability to listen
Drive/determination	Courage
Desire to lead	Work ethic
Enthusiasm	Commitment to job
Self confidence	Commitment to quality
Assertiveness	Sincere interest in staff
Self Discipline	Empathetic
Selflessness	Accessible
Honesty/Integrity	Ability to coordinate
Accountability	Ability to work with others
Value System	Expresses appreciation for good work
Reputation	Ability to take risks
Credibility	
Charisma	
Vision	
ACTIVITIES	**KNOWLEDGE (PROFESSIONAL COMPETENCE)**
Delegates authority	Business knowledge
Leads by example	Broadly based health care management experience
Develops staff	Specific Experience (i.e. experience working with physicians, finance and contract management experience
Mentors/Coaches	Organizational knowledge
	Knowledge of the organizational environment
	Knowledge of management skills

Table 3 offers the factors, as suggested by the literature, that influence the process of identifying personnel with leadership potential as well as methods of identification. Appendix B presents this information in more detail.

Table 4 depicts the methods of leadership development obtained from the literature (see appendix C for a more detailed description).

Table 3
Identification of Leadership Potential

Precursors to an Effective Program for Identifying Personnel with Leadership Potential
High recruiting standards
Ability to identify high potential people
Tolerating and understanding the need for a wide variety of managerial styles, traits, abilities et cetera
Time and effort devoted to the identification process
Methods of Identifying High-potential Staff Members
Interviews and references
Challenging job assignments that allow leaders to emerge
The individual's capacity to grow
Exposure to senior management levels
Evaluation of past performance.
Succession planning

Table 4
Methods of Leadership Development

Experience

* Guided job experience--rotation through a variety of jobs on a planned basis

* Lateral transfers inside and across departments/divisions

* Opportunities to practice leadership skills

* Challenging opportunities to include special projects and assignments

* Adding responsibilities to the current jobs of high-potential people for developmental purposes

* Providing stressful, job related experience, for developmental purposes

Individualized Guidance

* Mentoring, Coaching

* Role modeling, Training as understudy

Assessment and Feedback

* Performance appraisal process as a feedback mechanism

* Instruction on career management for long term development

* Feedback regarding developmental progress using methods other than the formal appraisal system

* Rewarding actions that support desirable development

* Reinforcing, throughout career, ethical base as source of decisions

Education and Training Programs

* Organizational and external academic and management training programs

* Academic degrees

* Formal apprenticeships or internships

* Formal classes or workshops

* Association with professional organizations

From this information, a preliminary list of questions was developed using the objectives identified for this study. In constructing the questions care was given to ensure that (a) they were stated unambiguously in terms easily understood by the designated survey respondents, (b) an adequate number of alternative answers were presented, and (c) the wording of the questions was unbiased. Questions in the finalized surveys were grouped into five domains:

1. Demographic (16 questions, except for Line respondents who had six)
2. General Leadership (five questions)
3. Leadership Attribute, (two questions)
4. Leadership Identification (four questions)
5. Leadership Development (two questions)

The surveys were tailored for each of the six target groups to enhance question clarity and allow for organizational differences. Customization of the surveys designed for health care executives was limited to three of the sixteen demographic data questions, the general questions regarding leadership (questions 2 through 5), and the two-part question regarding leadership attributes. The Line survey had only six demographic questions, as the 10 related to health care executives were either inappropriate or unnecessary. Examination of the sample surveys provided in appendix D, should satisfy readers that the modified

questions, in and of themselves, would not adversely affect the reliability and validity of the data.

Response Format

For the health care executives, the sixteen demographic questions were open-ended and provided organizational (e.g. type of treatment facility and number of beds) and personal information related to sex, age, specialty, years of experience, education, leadership development and past positions. In the Line survey there were six open ended questions used to obtain information regarding rank, Staff or War college attendance, years of Navy or Marine Corps service, and years associated with Naval Medical Department Commanding Officers.

The responses to the thirteen questions concerning leader attributes, identification, and development were recorded using various multiple choice formats. According to Emory, (1985) the use of multiple choice formats is appropriate when "one seeks graduation of preference, interest or agreement" (p. 219). Although dichotomous yes/no responses have been used for surveys of this nature, they were considered too restrictive for the purposes of this study. Consequently, it was decided that survey information would be obtained on five-point scales.

The first five questions captured the perceived need for more effective leadership and the general effectiveness of organizational leadership development efforts on a five point, bi-polar adjective scale. The possible responses were:

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

The first part of the next question (unnumbered) required respondents to individually rate a list of 39 leadership attributes in terms of their relative contribution to leader effectiveness. The response format was a Likert, five point, bi-polar adjective scale, anchored at two points (1 Not Important and 5 Essential). The second part of the question required respondents to indicate the degree that each of the 39 attributes were exhibited by health care executives within their organizations. Again, the response format was a Likert, five point, bi-polar adjective scale, anchored at two points (1 Low and 5 High).

Leadership Attribute response formats were:

Contribution to Leadership Ability					Degree Attribute Exhibited				
Not Important				Essential	Low				High
1	2	3	4	5	1	2	3	4	5

Questions 6 and 7 used five point rating scales to capture respondent's attitudes toward the possibility and importance of

identifying personnel with high leadership potential early in their careers. The possible responses were:

Question 6:

Almost Always	Sometimes	Uncertain	Seldom	Rarely

Question 7:

Not Important	Desirable	Uncertain	Very Desirable	Essential

Question 8 asked respondents to rate the effectiveness of six methods of identifying personnel with high leadership potential using a Likert, five point, bi-polar adjective scale anchored at two points (5 Extremely effective and 1 Not effective). Question 9 asked respondents to provide additional methods of identifying leadership potential and rate them on the same scale used in question 8.

Question 10 required respondents to rate the effectiveness of 17 methods of leadership development and question 11 asked for any additional methods. Both questions used the Likert scale described in the previous paragraph.

Response format used in questions 8 through 11:

Extremely effective				Not effective
5	4	3	2	1

Survey Instrument Evaluation

Once initial survey instrument development was complete, a pretest survey was conducted on a small representative sample of persons deemed typical of target group respondents. The pretest was given to nine individuals using the draft survey instrument. Survey respondents included: senior military physicians in leadership positions, experienced NAVMED and Department of Veterans Affairs administrators, Navy line community officers, and an Army officer. The pretest was used to assess the effectiveness of the survey instrument and to improve its reliability and validity.

To improve the value of their input, pretest group participants were not informed that they were participating in a survey test until after they had completed their surveys. Once finished, respondents were quizzed as to their understanding and interpretation of the survey questions. Specific comments were solicited relative to question clarity, perceived appropriateness and sequence, as well as, response format. The survey instrument was revised based on pretest input.

Validity and Reliability

Internal validity, or the ability of a questionnaire to measure what it is purported to measure, was addressed through an assessment of content and construct validity. Content validity, or the extent that the questionnaire provides adequate coverage of

the topic under study, was considered in the initial selection of constructs of leadership (e.g. traits, skills, behaviors, knowledge) and the individual construct items (intelligence, judgement, honesty, et cetera). Construct validity (the appropriateness of the selected constructs as leadership factors) was assessed using factor analysis.

Reliability--the ability of a survey instrument to provide a constant measurement when used to measure precisely the same thing--was addressed during questionnaire design and testing. As suggested by Kerlinger (1986), reliability was improved through the use of a carefully developed survey instrument with clear, unambiguous questions and instructions, as well as, standardized administration procedures. Reliability was assessed using the RANDOMIZED BLOCKS ANOVA procedure in MICROSTAT Version 4.0 (Ecosoft, 1986) and Cronbach's coefficient alpha reliability index (Cronbach's alpha). Microstat is a statistical analysis program widely used in the military.

Ethical Considerations

Participation in the study was voluntary, though strongly encouraged through the use of an individualized questionnaire cover letter signed by Rear Admiral Loar (see appendix E). In the cover letter, survey participants were informed of the purpose of the study and were assured that their responses would be treated confidentially. As indicated in the survey cover letter, this

report includes only statistical totals for each target group and the group as a whole.

Survey Administration

Because of time and funding constraints, the survey was administered via direct mailing vice telephone interview as originally planned. To enhance the perception of professionalism and convey the seriousness of the study, questionnaires were attractively formatted and printed on quality tan paper using a laser printer (see appendix D). Further, the cover letters were printed on Flag Officer stationery using a letter quality printer and were individually signed. Mr. Alan Goss, a DVA Medical Center Director, prepared an additional cover letter for all DVA respondents, which encouraged their participation. Surveys were mailed in large envelopes (to avoid folding) and self addressed stamped return envelopes were included. Appendix E contains samples of both cover letters used in the survey.

Respondents returned nearly all of their completed questionnaires within the three weeks allotted, however, surveys continued to trickle in for several weeks after the cutoff date. The final survey used in the study arrived six weeks after mailing. The Civilian respondents had the best response rate as all of the questionnaires mailed were returned. The Air Force respondents returned eight out of ten questionnaires and had the

lowest response rate (80%). As indicated in Table 5, the aggregate response rate was an exceptional 90.9%!

Table 5
Response Rate for Questionnaires

	Mailed	Returned	Response Rate
Army	12	11	91.6%
Air Force	10	8	80.0%
Navy Medicine	12	11	91.6%
Civilian non-government	10	10	100.0%
Line (Navy & Marine)	10	9	90.0%
Veterans Affairs (DVA)	12	11	91.6%
TOTAL	66	60	90.9%

Statistical Analysis

Data Coding

The questionnaires were numbered for the purpose of information tracking and responses were coded directly into SPSS/PC+ Version 1.0 for analysis (Norusis, 1988a). SPSS/PC+ is a microcomputer version of the Statistical Program for the Social Sciences (SPSS) long used by researchers to conduct statistical analysis and perform data management tasks.

Each survey was examined for completeness and responses to open-ended questions were reviewed. All 60 of the surveys were found acceptable for use. A database was designed based on the question type and the range of responses for open-ended questions.

Survey data were coded into the DATA ENTRY II module of SPSS/PC+ per the data coding procedures identified in appendix F. Variable and data value labels were built into the database to aid in data analysis.

Grouping of data

The primary grouping for analysis was by organization (that is, Army, Navy, Air Force et cetera). Health care executives were also grouped by, specialty (that is, medicine, nursing, administration et cetera). Dichotomous yes/no categorizations for leadership and management course attendance and previous assignment to developmental positions, were also used for comparative purposes.

Data Analysis

Descriptive Statistics

Descriptive statistics and various frequency distributions were obtained using the DESCRIPTIVES and FREQUENCIES modules of SPSS/PC+. This information was used to establish aggregate and target group profiles (such as average age, years of health care experience, type of education et cetera). Also, evaluation of the frequency and descriptive data allowed the development of appropriate sub-groups for further data analysis. The data tabulation feature of the FREQUENCIES program was also used to assess the accuracy of data coding (that is, a Dental Clinic should not list number of beds).

Crosstabulation Tables

Crosstabulation tables were generated using the SPSS/PC+ CROSSTABS module. The use of crosstabulation tables allowed variables to be cross-classified in order to evaluate suspected relationships. This procedure was used to stratify the data in matrix form for evaluation and presentation.

Analysis of Variance

An analysis of variance (ANOVA) was conducted using the ANOVA module of SPSS/PC+ to determine if statistically significant differences existed between the group ratings of the individual leadership factors. Significance was sought at the .05 level and was assessed through the computation of F-ratios.

Factor analysis

The basic purpose of factor analysis is to summarize, or condense, the information contained in a number of variables into a smaller set of composite dimensions, or factors (Hair, Anderson, Tatham, & Grablowsky, (1979). Grouping the variables into summary factors (constructs), allows the subject to be described more accurately and thus improves the validity of the survey instrument.

The first step in factor analysis is the computation of a correlation matrix which summarizes the degree of association between each of the items (variables) compared. Using the correlation matrix, factors are extracted (correlated), rotated

for simplification and again extracted. For a detailed and straightforward, explanation of factor analysis consult Hair et al. (1979).

The FACTOR procedure of SPSS/PC+ was used to reduce the number of variables in the three leadership domains (that is, Attributes, Identification Methods, and Development Methods) into smaller representative sets of surrogate variables or factors. Factors were extracted using the Principle Components Analysis method and rotated using the Varimax method. The Varimax method employs an orthogonal algorithm that minimizes the number of variables with high loadings (correlations) on a given factor. Use of the Varimax method was considered appropriate as the statistical analysis of factors requires that they be uncorrelated with each other, and this is possible only when the rotation method is orthogonal (Hair et. al., 1979).

The appropriateness of factor analysis was assessed using Bartlett's test of sphericity (which requires that the data be a sample from a multivariate normal population) and the Kaiser-Meyer-Olkin measure of sampling adequacy (Norusis, 1988b).

To allow further analysis of the factors identified, raw scores for factor variables were summed to produce a factor score.

III. RESULTS

As previously stated, the purposes of this study were to: (a) establish what traits, skills, knowledge, behaviors and activities

Navy Medical Department executives should possess, exhibit and engage in to be more effective leaders, (b) determine how Navy Medical Department personnel with leadership potential may be identified and, (c) determine how required leadership skills may be developed. The findings obtained in pursuing these objectives are presented in five sections: General Leadership, Leadership Attributes Required, Leadership Shortcomings, Leader Identification, and Leadership Development Methods. Though the possible significance of several findings are briefly addressed in this section, further elaboration has been saved for the Discussion section. Also, specific conclusions are presented in the Conclusions and Recommendations section.

Prior to the presentation of study findings, survey instrument reliability is discussed, followed by a demographic depiction of the group under study.

Reliability

As planned, the reliability of the survey instrument was assessed using Cronbach's alpha coefficient. In conducting this assessment, the survey questions were grouped into four domains: General Leadership, Leadership Attributes, Leadership Identification Methods, and Leadership Development Methods. Reliability test results are provided in appendix G.

General Leadership

The five questions grouped under this domain were assessed twice for reliability. First, reliability was assessed using responses from the population as a whole (Cronbach's alpha was only .59). However, when the questions were assessed by individual target group, the reliability coefficient for Navy Medical Department and Department of Veterans Affairs was improved to .76 and .85 respectively. The reliability coefficients for Air Force (.12), and the Line (.05), were extremely low.

Leadership Attributes

The 39 items grouped under this domain were also assessed twice for reliability. First, in response to the question regarding the attribute's contribution to leadership effectiveness and second, in response to the question regarding the degree the attribute was exhibited. Both assessments indicated a high degree of reliability with alpha coefficients of .86 and .96 respectively.

Leadership Identification Methods

The reliability coefficient of the eight questions in this domain was .63 for the population as a whole. However, a Cronbach's alpha of .80 was achieved when NAVMED respondents were used exclusively. Reliability was relatively low, when assessed by group, for the Air Force .45 and DVA .31.

Leadership Development Methods

Assessment of the responses to the 17 questions related to methods of developing leadership revealed an alpha of .85 indicating, that for the group as a whole, reliability was high within domain.

Group Profiles

Frequency distributions, cross tabulations and descriptive statistics were performed on the data in order to profile the respondents in aggregate and by target group. These procedures were also used to determine differences between the target groups in terms of their collective survey responses. In this section, the population is first described in aggregate and then by target group.

Health Care Executives as a Group

Demographic analysis of the aggregate population, depicted graphically in Table 6, indicated that the respondents were predominantly males (92.2%) who averaged 48 years of age. Forty-three percent were administrators by profession, followed closely by 41.2% who were physicians (see Table 7). Table 8 crosstabulates respondents' specialty by type of treatment facility.

At the time of the survey, the respondents had been with their organizations an average of 21 years and in their positions for 2 years. The respondents were very experienced, averaging

26.3 years in the health care field and almost 17 years in health care administration.

Table 6
Respondent Target Group Demographic Profiles

	Army	Air Force	Navy	Civilian	DVA	Medical Combined
Age	50	48	49	46	52	48 yrs
Gender[a]	100%	88%	72%	100%	90%	92%
Specialty[b]	100/0%	75/13%	30/30%	0/90%	09/81%	41/43%
Organization[c]	23	21	25	10	24	21 yrs
Position[d]	2	3	2	4	11	2 yrs
Health Care[e]	25	24	28	26	28	26 yrs
Administration[f]	11	14	11	24	20	17 yrs
MHA or MBA[g]	9%	25%	27%	100%	90%	49%
Executive[h]	81%	100%	30%	0%*	64%	69%
Leadership[i]	78%	63%	100%	40%	73%	85%
Development[j]	64%	100%	91%	80%	82%	82%
Beds[k]	543	187	104	305	568	283
OPVs[l]	165	400	130	65	220	195

Notes: [a]% male, [b]% physician/administrator, [c]years in organization, [d]years in position, [e]years health care experience, [f]years health care administration experience, [g]% who hold MHA or MBA, [h]% who attended Executive Development Courses (e.g. Staff or War College) [i]% who attended leadership courses, [j]% who held developmental positions, [k]no. of beds, [l]no. of outpatient visits in 1,000's.
* Only one Civilian organization sponsored an Executive Development course.

Table 7
Medical Respondent Specialties by Target Group (*n*=51)

Specialty	Army	Air Force	Navy	Civilian	DVA	% of Total
Administrator		12.5% (1)	27.3% (3)	90.0% (9)	81.8% (9)	43.1% (22)
Physician	100.0% (11)	75.0% (6)	27.3% (3)		9.1% (1)	41.2% (21)
Nurse			18.2% (2)		9.1% (1)	5.9% (3)
Dentist			18.2% (2)			3.9% (2)
Other		12.5% (1)	09.0% (1)	10.0% (1)		5.9% (3)
Totals	100% (11)	100% (8)	100% (11)	100% (10)	100% (11)	100% (51)

All survey respondents held a bachelors degree (as anticipated) and almost half (49%) held either a Masters in Business Administration (15.7%) or a Masters in Health Care Administration (33.3%). Only one of the respondents (in the Civilian group) held a non-medical doctoral degree. Of the physicians, 28.6% had some type of masters degree. Table 9 provides a crosstabulation of non-doctoral post graduate degrees by specialty.

As seen in Table 10, 69.2% of the health care executives that responded to the question concerning executive development program

participation, had attended some type of formalized executive training program (that is, Staff or War College, DVA Executive — Development Course et cetera). Only one of the Civilian organizations represented had an executive development program, which the respondent had not attended. Just over 85% of

Table 8
Respondent Specialties by Type of Treatment Facility (*n*=51)

Specialty	Hospital	Medical Clinic	Dental Clinic	Special Hospital	Multi-Hospital	% of Total
Administrator	77.3% (17)	4.5% (1)		9.1% (2)	9.1% (2)	43.1% (22)
Physician	100.0% (21)					41.2% (21)
Nurse	66.7% (2)	33.3% (1)				5.9% (3)
Dentist			100.0% (2)			3.9% (2)
Other	66.7% (2)	33.3% (1)				5.9% (3)
Totals	82.4% (42)	5.9% (3)	3.9% (2)	3.9% (2)	3.9% (2)	100% (51)

Table 9
Type of Masters Degrees by Respondent Specialty (*n*=51)

	Administrator	Physician	Nurse	Dentist	Other	% of Total
MHA	63.7% (14)	9.6% (2)	33.3% (1)			33.3% (17)
MBA	27.3% (6)				66.7% (2)	15.7% (8)
Other	4.5% (1)	19.0% (4)	33.3% (1)	50.0% (1)	33.3% (1)	15.7% (8)
None	4.5% (1)	71.4% (15)	33.3% (1)	50.0% (1)		35.3% (18)
Totals	100% (22)	100% (21)	100% (3)	100% (2)	100% (3)	100% (51)

Table 10
Number of Respondents that Attended Executive Development Courses by Target Group (*n*=39)

	Army	Air Force	Navy	Civilian	DVA	Totals
Attended	9	8	3		7	27 (69.2%)
Did not attend	2		7	1	2	12 (30.8%)

respondents indicated they had attended "significant" leadership courses or seminars, however, almost 20% provided no response to this question. The information presented in Table 11, indicates that 42 respondents (82.4%) had held some type of developmental position, or positions.

Table 11
Number of Respondents that Held Developmental Positions (n=51)

	Army	Air Force	Navy	Civilian	DVA	Totals
Held developmental positions	7	8	10	8	9	42 (82.4%)
Did not hold developmental positions	4		1		1	6 (11.8%)
Did not respond				2	1	3 (5.8%)

As indicated in Table 12, only five of the fifty-one treatment facilities represented in this study were not hospitals and of these, three were medical clinics that provided outpatient medical care. The typical facility was a 283 bed general medical/ surgical hospital that treated 195,000 outpatients per year.

Table 12
Types of Treatment Facilities by Target Group (*n*=51)

	Army	Air Force	Navy	Civilian	DVA	Totals	
Hospital	11	6	8	6	11	42	82.4%
Medical Clinic		2	1			3	5.9%
Dental Clinic			2			2	3.9%
Specialty Hospital				2		2	3.9%
Multi-hospital				2		2	3.9%
						51	100%

Health Care Executives by Target Group

Navy Medical Department. Demographic analysis of the Navy Medical Department population data, indicated that the respondents were predominantly males (72.3%) who averaged just over 49 years of age. This group was the most diverse professionally (see Table 7) with a fairly even split between administrators, physicians, nurses, and dentists. At the time of the survey, the members of this group had been with their organizations just under 25 years (24.7) and in their positions for 1 1/2 years. The respondents were very experienced, averaging almost 28 years in the health

care field and had been involved in health care administration for just over 11 years (11.3).

Six (54.5%) of the NAVMED respondents held masters degrees of which three (27.3%) held either an MHA or an MBA. Only three (30%) of the NAVMED Commanding Officers that answered the question concerning executive development program participation, had attended a Staff and/or War College. All respondents indicated they had attended some type of significant leadership course or seminar, and all but one of the respondents indicated that they had held some type of developmental position, or positions.

The typical Navy facility was a 104 bed general medical/ surgical hospital that treated 130,000 outpatients per year.

Army Medical Department. Demographic analysis of the Army Medical Department population data, indicated that the respondents were all male physicians who averaged approximately 50 years of age. At the time of the survey, they had been with their organizations approximately 22 1/2 years and in their positions for just over 2 years. The respondents were very experienced, averaging just over 25 years in the health care field and had been involved in health care administration for almost 11 1/2 years.

Eight of the Army respondents (72.7%) did not hold a masters degree, and of those that did, only one (9.1%) held an administrative degree (MHA). Eight (81.1%) of the Army Commanders, indicated that they had attended a Staff and/or War

College. Seven of the respondents (77.7%) indicated they had attended some type of significant leadership course or seminar, and seven (63.6%) indicated that they had held some type of developmental position, or positions.

The typical Army facility was a 165 bed general medical/surgical hospital that treated 543,000 outpatients per year.

Air Force Medical Department. Demographic analysis of the Air Force Medical Department population data, indicated that the respondents were predominantly male (87.5%) physicians (75%), who averaged approximately 48 years of age. At the time of the survey, they had been with their organizations just over 21 years and in their positions for just over 2 1/2 years. The respondents were experienced, averaging almost 24 years in the health care field and had been involved in health care administration for just over 14 years.

Four of the Air Force respondents (50%) held a masters degree of which 25% held either an MHA or an MBA, and all indicated that they had attended a Staff and/or War College. Only five (62.5%) respondents indicated they had attended some type of significant leadership course or seminar. All respondents indicated that they had held some type of developmental position, or positions.

The typical Air Force facility was a 187 bed general medical/surgical hospital that treated 400,000 outpatients per year.

Civilian Group. Demographic analysis of the Civilian population demograpnic data, indicated that this all male group—was the youngest among the groups surveyed with an average age of 46 years. Further, this group had the highest percentage (90%) of professional administrators functioning in the capacity of CEO.

The Civilian group, on average, had the most health care administration experience with approximately 23 1/2 years and averaged just over 26 years in the health care field. At the time of the survey, they had been in their positions for approximately 4 years, but had been with their organizations for only 10 years.

All of the respondents held a masters degree--30% held MBA's and 70% MHA's. Also, one held a Ph.D in Health Care Administration. Only one of the respondents indicated that his organization sponsored an executive development program (which he had not attended). Four of the five individuals who responded to the question on leadership course or seminar attendance, indicated that they had attended some type of significant leadership course, however, 50% of the group provided no response. All of those who provided information related to past assignments had held developmental positions (80% responded to the question).

The typical Civilian facility was a 305 bed general medical/surgical hospital that treated 65,000 outpatients per year.

Department of Veterans Affairs. Demographic analysis of the Department of Veterans Affairs population data, indicated that all but one of the respondents were male (90.9%). This group was the oldest with an average age of almost 52 1/2 years and nine (81.8%) were administrators by profession. At the time of the survey, they had been with their organizations approximately 24 years and in their positions for 10.5 years. This group of respondents, on average, had the most experience in the health care field with approximately 28 years, and averaged approximately 20 years in health care administration.

All but one of the respondents (90.9%) held some type of masters degree, and of those, 70% held and MHA and 30% an MBA. Seven of the nine that responded to the question regarding executive development program attendance, indicated that they had participated in the DVA's Executive Development Program. Eight DVA executives indicated they had attended some type of significant leadership course (three did not respond to the question). Almost 82% indicated they had held some type of developmental position, or positions.

The typical DVA facility was a 568 bed general medical/surgical hospital that created 220,000 outpatients per year.

Demographic Analysis of the Line Group. Demographic analysis of the Line population data, indicated that the respondents had

been with their organizations just over 32 years (32.1) and in their positions for just under 2 years (1.86). The respondents had been associated with Navy Medical Department Commanding Officers for an average of almost 17 years (16.78).

Seven (77.7%) of the Line respondents were Navy and two were Marine Corps. Five (55.6%) of the respondents were of the rank of Rear Admiral Lower Half or Brigadier General (Grade of 07), and four were either Rear Admiral Upper Half or Major General (Grade of 08). Not surprisingly, two-thirds (66.7%) of these Flag level officers had attended a senior staff college.

General Leadership Findings

The five general leadership statements enumerated below, were designed to assess the overall need for more effective leadership within the Navy Medical Department (and the health care system as a whole) as perceived by the NAVMED respondents surveyed. As discussed in the Survey Instrument Development section, respondents from each of the other five target groups were asked to respond to the same general statements regarding their respective organizations (see appendix D for sample surveys).

General Leadership Statements:

1. There is a need for more effective leadership in this nation's health care delivery system as a whole.

2. There is a sufficient number of personnel in the Navy Medical Department with the qualifications to provide effective leadership.

3. The Navy Medical Department did a good job of preparing me for my current position as Commanding Officer.

4. The Navy Medical Department is doing a good job of developing future leaders.

5. The Navy Medical Department is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top executive positions.

Health Care Executives as a Group

As a group, the health care executives surveyed overwhelmingly supported leadership researchers, theorists and experts in their contention that there is a need for more leadership in the health care sector. Fully 96% of agreed with the statement regarding the need for more effective leadership in the health care delivery system as a whole. Only one respondent disagreed with the statement, and one was uncertain.

As a group, just over 70% of the health care executives agreed with the second statement. This suggests that there are a sufficient number of personnel with the qualifications necessary to provide effective leadership within the organizations represented in this study. However, almost one-third (27.4%) either disagreed with the statement, or were uncertain.

In aggregate, the third statement, produced a slightly lower positive response, as only 68.6% of the health care executives felt their organizations did an adequate job of preparing them for their positions as organizational leaders. Fully 21.6% felt they were not adequately prepared, while four respondents (7.8%), failed to answer the question at all.

In response to the fourth statement, only 33 (64.7%) of the 51 health care executives agreed that their organizations were doing a good job of developing their future leaders. Just over 35% either disagreed with the statement or were uncertain.

Finally, in responding to the last general statement, favorable opinions bottomed-out as only 54.9% of the health care executives felt their organizations were doing a good job of recruiting a sufficient number of people with the potential to provide effective leadership in top executive positions. Table 13 depicts the distribution of responses, by statement, for the health care executives as a group (numbers in parenthesis indicate the actual number of responses within response category).

Table 13
Aggregate Responses to General Leadership Questions (n=51)

	RESPONSE			
	Agree	Disagree	Uncertain	No Response
Need more effective leadership	96.0% (49)	2.0% (1)	2.0% (1)	0.0% (0)
Currently enough leaders	70.6% (36)	17.6% (9)	9.8% (5)	2.0% (1)
Adequately prepared for leadership role	68.6% (35)	21.6% (11)	2.0% (1)	7.8% (4)
Adequately developing future leaders	64.7% (33)	19.6% (10)	15.7% (8)	0.0% (0)
Recruiting enough future leaders	54.9% (28)	19.6% (10)	23.5% (12)	2.0% (1)

Note: Number of respondents indicated in parenthesis.

Navy Medical Department Respondents

As seen in Table 14, Navy Medical Department respondents, unanimously supported the notion that more effective leadership is required in the health care system as a whole, and only 45.5% indicated that there was a sufficient number of personnel in the Naval Medical Department with the qualifications to provide effective leadership. Almost one-third (27.3%) of the NAVMED respondents disagreed with the statement.

Considering that NAVMED respondents expressed the need for additional leadership, it was surprising that 81.8% felt the Navy

had done a good job of preparing them for their position as Commanding Officer, and that 72.7% felt that the Navy was doing a good job of developing its future leaders.

Table 14
Navy Medicine Responses to General Leadership Questions (*n*=11)

	RESPONSE			
	Agree	Disagree	Uncertain	No Response
Need more effective leadership	100.0% (11)	0.0% (0)	0.0% (0)	0.0% (0)
Currently Enough Leaders	45.4% (5)	27.3% (3)	27.3% (3)	0.0% (0)
Adequately prepared for leadership role	81.8% (9)	18.2% (2)	0.0% (0)	0.0% (0)
Adequately developing future leaders	72.7% (8)	9.1% (1)	18.2% (2)	0.0% (0)
Recruiting enough future leaders	45.4% (5)	18.2% (2)	36.4% (4)	0.0% (0)

Note: Number of respondents indicated in parenthesis.

More in keeping with their perceived need for more personnel with leadership skills, only 45.5% of the NAVMED respondents felt that the Navy Medical Department was doing a good job of recruiting a sufficient number of people with the potential to provide effective leadership in top executive positions.

Line respondents

Line respondents were also of the opinion that more effective leadership is required in the health care system as a whole. Further, their responses supported Blue Ribbon panel findings that suggest a need for additional leaders within the Navy Medical Department, as only 44.4% felt there were currently enough qualified leaders. This finding was further supported by the fact that only 55.6% of the respondents felt that current Commanding Officers had been adequately prepared for their positions.

In examining the line responses to the statements regarding the recruitment and development of future leaders (see Table 15), it is important to consider the high degree of uncertainty in their opinions. This self reported uncertainty, combined with the low degree of question reliability for Line respondents (Cronbach's alpha of .05) suggests that possibly the Line respondents surveyed were not sufficiently familiar with Navy Medicine to accurately assess the effectiveness of its leaders This point will be further discussed in the Discussion section.

Leadership Attributes Required

An assessment of the attributes required for effective leadership in the health care sector was conducted to determine if there was consensus on which attributes contributed most to

Table 15
Line Responses to General Leadership Questions (*n*=9)

	RESPONSE			
	Agree	Disagree	Uncertain	No Response
Need more effective leadership	88.9% (8)	0.0% (0)	0.0% (0)	11.1% (1)
Currently enough leaders	44.5% (4)	33.3% (3)	22.2% (2)	
Adequately prepared for leadership role	55.6% (5)	22.2% (2)	22.2% (2)	
Adequately developing future leaders	44.5% (4)	11.0% (1)	44.5% (4)	
Recruiting enough future leaders	44.5% (4)	22.2% (2)	33.3% (3)	

leadership effectiveness within the Navy Medical Department, the health care field as a whole, and the Navy line community and Marine Corps. Specifically, an attempt was made to determine if there was a "leadership profile" that characterized the type of leader required in today's health care environment.

In this section of the study, health care executives were asked to rate 39 leadership attributes in terms of the relative contribution each made to a health care leaders ability to provide effective leadership. For their part, Line respondents were asked to rate each attributes contribution to the leadership ability of

Navy Medical Department leaders. Respondents assessed attribute scores that ranged from 1 (Not important) to 5 (Essential).

Factor Analysis

As planned, the first step in the analysis of leadership attributes was a factor analysis of the individual leadership variables. The factor analysis process, as conducted in this study, is discussed below. Included in the discussion are the common procedures employed on each of the three leadership domains analyzed: Attribute, Identification Methods and Development Methods.

The Attribute, Identification Methods, and Development Methods domains were each subjected to factor analysis to improve the validity and therefore, the accuracy of the results reported. In conducting the procedure, an assessment of variable to variable correlation and multiple factor loading was performed. Kim & Mueller (1982) state that factors rarely fall out cleanly in factor analysis (that is, some variables will load [correlate] heavily with more than one factor). In such cases a subjective assessment must be made to determine which factor the variable will be associated with, or whether it should be rejected as a valid measurement. Several variables were discarded based on the results of the factoring process (six from the Leadership Attribute domain and one from the Leadership Development domain). All factoring procedures passed the Kaiser-Meyer-Olkin Measure of

Sampling Adequacy and the Bartlett Test of Sphericity. Detailed factoring results are contained in appendix H. Summary results are presented by domain.

Factor Analysis of Leadership Attributes. When subjecting variables to factor analysis, Hair et al. (1979) state that, as a general rule, there should be four or five times as many observations (respondents) as there are variables to be analyzed. Because this domain contained a relatively large number of variables (39), compared to number of respondents (60), the variables were subdivided for analysis. A thorough analysis of the 39 item correlation matrix produced four groups of highly correlated variables. Each group was factored separately and produced a total of 16 factors. Table 16 is a list of the Leadership attribute factors and component variables.

Analysis of Leadership Attribute Factors

Once the 16 leadership attribute factors had been established, scores for the Attributes Contribution to Leadership Ability (Contribution scores) were computed (appendix I details the process used to calculate factor scores.) Descriptive statistics were performed on Contribution factor scores for the individual target groups and the group as a whole. Table 17 presents the Contribution factor mean and standard deviation scores by group.

A review of the descriptive statistics revealed that, for the group as a whole, mean factor scores ranged from a high of 4.93 for Judgement to a low of 3.40 for Business Experience. As a group, the respondents indicated that personal characteristics were the most important leadership attributes, as all of the attributes with a mean score above 4.50 were personal traits. Only three of the factors had group mean scores less than 4.00: Charisma, Operational Experience and Business Experience

There was relatively little dispersion of the individual factor scores as the standard deviation for each was less than .75 (except for Operational Experience which was 1.04 for the group as a whole). Though somewhat subjective, the small degree of dispersion suggests that there is general consensus among the respondents, in aggregate and by target group, as to the relative importance of each of the leadership attribute factors. Table 17 also depicts the factor rankings for each target group. Within Table 17, the individual group rankings are indexed on the rankings of the NAVMED for comparison.

One of the objectives of this study was to determine whether the leadership characteristics identified as important by Navy Medical Department leaders were similar to those identified by the

Table 16
Leadership Attribute Factors and Component Variables

Factor	Factor Variables
Intelligence	(Intellectual Capacity + Self Confidence)
Judgement	(Judgement)
Desire to Lead	(Self Discipline + Drive + Desire to Lead + Enthusiasm)
Reputation	(Accountability + Honesty + Credibility).
Value System	(Strong Value System)
Charisma	(Personal Charisma)
Vision	(Vision)
Role Models	(Leaderhip by Example + Work Ethic + Accessibility + Ability to Listen)
Concern for Others	(Empathy + Commitment to Quality)
Works with Others	(Ability to Communicate + Interest in Staff + Ability to Work with Others)
Develops Subordinates	(Ability to Mentor + Ability to Develop Subordinates)
Goals Through Others	(Coordination Skills + Delegation Skills + Ability to take Risks)
Business Experience	(Finance experience + Contract experience)
Physician Experience	(Experience with physicians)
Operational Experience	(Fleet/Field/Squadron experience)
Knowledge	(Knowledge of the organization + Knowledge of the environment)

Table 17

Factor Contribution to Leadership Ability - Descriptive Statistics and Group Rankings*

Factor	Navy (n=11)			Line (n=9)			Army (n=11)			Air Force (n=8)			Civilian (n=11)			DVA (n=11)			Medical Only (n=51)			Total Group (N=60)		
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank
Value System	5.00	.00	1	4.78	.44	5	4.91	.30	3	4.75	.46	5	4.90	.32	1	4.82	.40	3	4.88	.33	2	4.87	.34	2
Judgement	4.91	.30	2	5.00	.00	1	5.00	.00	1	4.75	.46	5	4.90	.32	1	5.00	0.0	1	4.92	.27	1	4.93	.25	1
Concern for Others	4.91	.20	2	4.56	.63	10	4.64	.39	7	4.94	.18	1	4.75	.35	6	4.73	.34	5	4.65	.48	4	4.60	.53	4
Reputation	4.88	.22	4	4.96	.11	2	4.94	.13	2	4.92	.15	2	4.90	.22	1	4.88	.31	2	4.78	.42	3	4.80	.40	3
Desire to Lead	4.80	.38	5	4.83	.22	3	4.55	.44	11	4.81	.26	4	4.75	.29	6	4.64	.42	6	4.44	.58	7	4.46	.57	7
Works with Others	4.73	.33	6	4.78	.33	5	4.70	.48	5	4.71	.38	7	4.70	.33	8	4.58	.50	7	4.41	.57	8	4.43	.56	9
Role Models	4.73	.33	6	4.58	.38	9	4.68	.34	6	4.88	.13	3	4.43	.47	11	4.57	.34	8	4.31	.51	10	4.32	.50	10
Knowledge	4.59	.38	8	4.83	.35	3	4.73	.47	4	4.56	.56	8	4.70	.42	8	4.55	.52	9	4.49	.58	6	4.53	.57	6
Develops Subordinates	4.59	.49	8	4.67	.43	7	4.55	.57	9	4.44	.68	10	4.30	.67	13	4.23	.52	13	4.27	.67	11	4.32	.65	10
Goals through Others	4.53	.53	10	4.44	.50	11	4.58	.40	9	4.46	.50	9	4.63	.43	10	4.42	.47	12	4.26	.60	12	4.25	.60	12
Vision	4.45	.52	11	4.22	.67	13	4.64	.50	7	4.38	.52	11	4.90	.32	1	4.82	.40	3	4.65	.48	4	4.58	.53	5
Intelligence	4.45	.52	11	4.39	.33	12	4.15	.71	13	4.25	.46	13	4.85	.24	5	4.55	.42	9	4.24	.62	13	4.22	.59	13
Physician Experience	4.27	.90	13	4.67	.71	7	4.55	.52	11	4.38	.92	11	4.40	.70	12	4.45	.69	11	4.41	.73	8	4.45	.72	8
Charisma	4.00	.63	14	3.78	.67	16	3.73	.79	14	3.75	.46	14	3.90	.74	14	3.73	.79	14	3.82	.68	14	3.82	.68	14
Operational Experience	3.91	.94	15	4.11	1.05	14	3.45	1.13	16	3.00	.76	16	**	**	**	**	**	**	3.50	1.01	15	3.64	1.04	15
Business Experience	3.41	.77	16	3.83	.50	15	3.64	.64	15	3.38	.58	15	3.75	.59	15	3.59	.74	15	3.33	.71	16	3.40	.69	16

Notes: * Leadership factors are indexed on Navy rankings

** Operational Experience was not rated by the two civilian groups

other health care executive groups surveyed. As seen in Table 18, the NAVMED factor rankings were fairly consistent with those of the other health care executive groups. However, there were several notable exceptions.

When comparing NAVMED factor rankings with the rankings of the four health care groups and the group as a whole, there were several factors which had a ranking difference of at least five places. These are identified in Table 18 by a single asterisk (refer Table 17 for Mean scores and Standard Deviations). In comparing the NAVMED factor scores to those of the other groups, the majority of differences were found between the Civilian group, as clearly depicted in Table 18.

The most notable difference related to the ranking of the Vision factor. In both of the non-military groups Vision was highly ranked--tied for first place in the Civilian group (mean of 4.90) and ranked third by the DVA (mean of 4.82). In the NAVMED and the Air Force the ranking was relatively low with mean scores of 4.45 and 4.38 respectively. Though not listed in Table 18, the Line also ranked Vision quite low at 13 with a mean score of 4.22 (see Table 17). For both Vision and Intelligence the difference between the NAVMED and Civilian scores was statistically significant at the $p < .03$ level.

There was also a difference in the relative importance of developing subordinates as indicated by the Develops Subordinates

mean score of 4.59 for the NAVMED compared to 4.30 and 4.23 for the Civilian and the DVA respectively. The importance of developing subordinates was clearly identified by the military respondents to include the Line.

The opinions of the Civilian health care executives also differed when assessing the Intelligence and Role Modeling factors. They found intelligence to be more essential to effective leadership as indicated by the factor's rank and mean score (5 and 4.85) compared to the NAVMED (11 and 4.45). As seen in Table 18, the other groups also ranked intelligence as a less critical attribute. In another comparison with the Civilian group, the NAVMED placed more importance on Role Modeling with a mean score of 4.73 compared to the Civilian score of 4.43. In looking at a group comparison between the NAVMED and the Army, there appears to be a difference between their rankings of the Concern for Others and Desire to Lead factors. However the mean scores were quite high in both groups: Concern for Others had mean scores of 4.91 and 4.64 and Desire to Lead was scored at 4.80 and 4.55 for the NAVMED and Army respectively.

Table 18
Attribute Contribution Factors - Ranked by Health Care Target Group

	RANKINGS					
	Navy	Army	Air Force	Civi-lian	DVA	All Medical
Value System	1	3	5	1	3	2
Judgement	2	1	5	1	1	1
Concern for Others	2	7*	1	6	5	4
Reputation	4	2	2	1	2	3
Desire to Lead	5	11*	4	6	6	7
Works with Others	6	5	7	8	7	8
Role Models	6	6	3	11*	8	10
Knowledge	8	4	8	8	9	6
Develops Subordinates	8	9	10	13*	13*	11
Goals through Others	10	9	9	10	12	12
Vision	11	7	11	1*t	3*	4*
Intelligence	11	13	13	5*t	9	13
Physician Experience	13	11	11	12	11	8*
Charisma	14	14	14	14	14	14
Operational Experience	15	16	16	**	**	15
Business Experience	16	15	15	15	15	16

Notes:
* Target group rankings with a difference of at least five places when compared to NAVMED ranking.
** Civilian groups were not asked to rate Operational Experience.
t $p < .03$

A comparison of the leadership characteristics identified by Navy Medical Department leaders and those identified by the Line was conducted to determine if differences existed. As seen in Table 19, only three factors had ranking differences equal to, or greater than, five places. Most noticeable was the difference between the second place NAVMED ranking, and the tenth place Line ranking, of the Concern for Others factor. Examination of the

mean scores (provided in Table 17) however, indicated that they were high for both groups--4.91 for Navy Medicine and 4.56 for the Line.

Table 19
Attribute Contribution Factors - Ranked by NAVMED and Line

	RANKINGS	
	NAVMED	Line
Value System	1	5
Judgement	2	1
Concern for Others	2	10*
Reputation	4	2
Desire to Lead	5	3
Works with Others	6	5
Role Models	6	9
Knowledge	8	3*
Develops Subordinates	8	7
Goals through Others	10	11
Vision	11	13
Intelligence	11	12
Physician Experience	13	7*
Charisma	14	16
Operational Experience	15	14
Business Experience	16	15

* Line rankings with a difference of at least five places when compared to the NAVMED ranking.

Analysis of the ranking difference of the Knowledge factor (which reflects the importance of understanding the organization and its environment) was unrevealing as it was highly rated by both the Line (mean of 4.83) and Navy Medicine (4.59).

The Line ranked the Physician Experience factor highly with a mean score of 4.67, while the NAVMED rated it as relatively

unimportant (mean of 4.27). As seen in Table 18, it was also considered relatively unimportant by the other health care groups. The Line's inexperience in the health care arena could explain their emphasis on physician experience.

Leadership Shortcomings

The next logical step in this study was to identify specific leadership shortcomings within the Navy Medical Department as perceived by the Navy Medical Department executives and Line respondents surveyed. Additionally, the leadership shortcomings identified by health care executives in the other target groups surveyed, were analyzed for comparison.

In this portion of the survey health care executives rated the degree that each of 39 leadership attributes were exhibited by health care executives in their organizations. The Line respondents were asked to rate the degree that Navy Medical Department health care executives they were familiar with exhibited the attributes. Attribute scores ranged from a score of 1 (exhibited to a low degree) to 5 (exhibited to a high degree).

As previously discussed, the 39 leadership attributes were subjected to a factor analysis that produced 16 factors. For each of the factors, "Degree Exhibited" scores were computed (appendix I details the formulas used to calculate the factor scores).

Once the leadership attribute factors had been determined, descriptive statistics were performed on the Degree Exhibited

factor scores of the individual target groups and the group as a whole. Table 20 presents the Mean and Standard Deviation scores by group as well as the factor rankings for the group as a whole, the health care executives as a group, and for each target group. Factor ranks are in descending order and are based on the degree each is perceived to be exhibited.

A review of the descriptive statistics, for the group as a whole, revealed mean scores that ranged from a high of 4.02 for Physician Experience to a low of 2.70 for Business Experience. As a group, the respondents indicated (with the exception of Physician Experience) that the leadership attributes most highly exhibited by the health care leaders were personal traits.

Overall, the Degree Exhibited mean scores were relatively low, when compared to the factor Contribution mean scores computed in the previous section, as over half (56%) were under 3.50 (see Table 17). Also, the degree of score dispersion, as indicated by the factor standard deviation scores, was more pronounced in this analysis when compared to the factor Contribution standard deviation scores. This is especially true for the Line, which had standard deviations of at least 1.0 on six of the sixteen factors.

The high degree of variability among the responses provided by the Line, when compared to the other five groups, suggests one of following: (a) that Line respondents are rating individuals from different populations or, (b) that there is a high degree of

Table 20
Degree Leadership Factors Exhibited - Descriptive Statistics and Group Rankings*

Factor	Navy (n=11)			Line (n=9)			Army (n=11)			Air Force (n=8)			Civilian (n=11)			DVA (n=11)			Medical Only (n=51)			Total Group (N=60)		
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank
Judgement	4.27	.47	1	4.11	.78	6	3.90	.57	2	3.63	.74	4	3.80	.42	3	3.73	.65	2	3.88	.59	2	3.92	.62	2
Strong Value System	4.18	.75	2	4.67	.50	1	3.70	.48	4	4.00	.76	1	3.50	.53	5	3.55	.69	5	3.78	.68	4	3.92	.73	2
Reputation	4.00	.63	3	4.33	.71	4	3.50	.85	5	3.25	.71	8	3.70	.67	4	3.18	.60	9	3.54	.73	6	3.66	.78	6
Charisma	3.91	.70	4	3.89	.93	10	3.20	.79	11	3.63	.52	4	3.40	.52	6	3.00	.77	12	3.42	.73	8	3.49	.77	8
Physician Experience	3.91	.70	4	4.63	.52	2	4.33	.71	1	3.75	.71	2	3.90	.74	2	3.73	.79	2	3.92	.73	1	4.02	.74	1
Desire to Lead	3.82	.60	6	3.78	.83	11	3.50	.71	5	3.25	.46	8	3.10	.57	9	3.36	.67	6	3.42	.64	8	3.47	.68	9
Concern for Others	3.73	1.10	7	4.44	.53	3	3.33	.71	8	3.38	.74	7	3.40	.70	6	3.36	.67	6	3.45	.79	7	3.60	.84	7
Knowledge	3.73	.65	7	4.22	.97	5	3.50	.93	5	3.63	.74	4	4.10	.57	1	3.91	.70	1	3.79	.71	3	3.86	.77	4
Intelligence	3.73	.47	7	4.00	.50	8	3.80	.63	3	3.75	.71	2	3.40	.70	6	3.64	.67	4	3.66	.63	5	3.71	.62	5
Works with Others	3.55	.82	10	4.00	1.00	8	3.11	.60	12	3.25	.46	8	3.30	.67	10	3.18	.75	9	3.29	.68	10	3.40	.77	11
Role Models	3.45	.52	11	4.11	1.05	6	3.33	.50	8	3.25	.46	8	3.00	.47	12	3.36	.50	6	3.29	.50	10	3.41	.68	10
Operational Experience	3.27	1.19	12	3.75	1.16	14	3.22	.44	10	2.00	.93	14	**	**	**	**	**	**	2.89	1.07	15	3.08	1.13	14
Vision	3.27	.90	12	3.78	1.09	11	3.10	.99	13	3.00	.76	13	3.00	.82	12	2.82	.87	14	3.04	.86	13	3.15	.93	13
Goals through Others	3.20	.79	14	3.67	1.00	15	2.89	.93	15	2.75	.71	15	2.70	.67	15	2.91	.70	13	2.90	.75	14	3.02	.83	15
Develops Subordinates	3.18	.87	15	3.78	1.30	11	3.00	1.00	14	3.13	.64	12	3.20	.63	11	3.09	.54	11	3.12	.73	12	3.22	.86	12
Business Experience	2.55	1.04	16	3.13	1.25	16	2.67	.71	16	2.13	.64	16	3.00	.82	12	2.73	.79	15	2.63	.83	16	2.70	.91	16

Notes: Factors are ranked in descending order based on the degree each is perceived to be exhibited
* Leadership factors are indexed on Navy rankings
** Operational Experience was not rated by the two civilian groups

variability in the extent that leadership skills are exhibited by Navy Medical Department executives or, (c) that Line respondents are not sufficiently familiar with the Navy Medical Department executives to accurately assess their leadership abilities.

To facilitate the identification of perceived leadership shortcomings for the groups under study, a mean score that reflected the disparity between the importance of the leadership factor, and the degree it was exhibited, was computed. Calculation of this statistic involved subtracting the factor scores of the Degree Exhibited assessments from the Contribution scores for each case. From these raw scores, a mean factor score was obtained for each target group and the group consisting of all medical respondents (Note: virtually the same score could have been obtained by simply subtracting the group mean score for Degree Exhibited from the group mean score for Contribution, however the method employed was considered more precise.)

Table 21 is a rank-ordered list of the leadership factors, based on their relative importance, as indicated by the health care executives as a group. Included in this table, are mean scores indicating, the relative importance (Contribution) of the factor, the degree it was exhibited, and the disparity between the two. For ease of comparison, the degree of disparity is ranked for the six highest Disparity scores (indicated by the numbers in superscript).

Table 21
Leadership Shortcomings for Health Care Executives as a Group

	MEAN SCORE		
Factor	Contribution	Degree Exhibited	Disparity
Judgement	4.92	3.88	1.04
Value System	4.88	3.78	1.10[6]
Reputation	4.78	3.54	1.24[3]
Concern for Others	4.65	3.45	1.20
Vision	4.65	3.04	1.62[1]
Knowledge	4.49	3.79	.71
Desire to Lead	4.44	3.42	1.02
Works with Others	4.41	3.29	1.12[5]
Physician Experience	4.41	3.92	.49
Role Models	4.31	3.29	1.02
Develops Subordinates	4.27	3.12	1.16[4]
Goals through Others	4.26	2.90	1.35[2]
Intelligence	4.24	3.92	.59
Charisma	3.82	3.42	.40
Business Experience	3.33	2.63	.70
Operational Experience	3.50	2.89	.57

Note: Factors listed in extent of contribution sequence.
Superscripted numerals indicate the six highest Disparity scores.

In reviewing the Disparity scores, it is important to note that, of the six leadership factors found most wanting, three were for factors considered to be important contributors to leadership effectiveness (that is, Contribution scores were above 4.50): Value System, Reputation and Vision.

Leadership Shortcomings as Identified by Navy Medical Department Respondents

Table 22, is a presentation of information obtained from the Navy Medical Department respondents. Formatted similarly to Table

21, the factors in Table 22 are rank-ordered based on the Navy Medical Department respondents' perception of their importance. In addition to the three mean scores provided in Table 21, a Disparity score for Line respondents was included in Table 22 for comparison.

An evaluation of the information contained in Table 22, revealed that five of the six leadership factors found most wanting were for factors with a mean score above a 4.50. Especially noteworthy, was the degree of disparity for the Develops Subordinates (1.36) and the Concern for Others (1.09) fa ors which both had relatively low Degree Exhibited mean scores (3.18 and 3.73 respectively). Additionally, two other factors had very low Degree Exhibited scores, Vision (3.27) and Goals through Others (3.20), though neither was ranked very highly based on the Contribution mean scores.

Navy Medical Department Leadership Shortcomings as Identified by Line Respondents

An assessment of information contained in Table 23, indicated that the group of Line respondents surveyed were relatively satisfied with the leadership abilities of the Navy Medical Department Commanding Officers they were familiar with. This group had the lowest degree of disparity between the relative importance of a leadership factor and the degree it was observed to be exhibited.

Table 22
Leadership Shortcomings for Navy Health Care Executives

Factor	MEAN SCORE			
	Relative Importance	Degree Exhibited	Disparity NAVMED	Disparity Line
Strong Value System	5.00	4.18	.82	.11
Judgement	4.91	4.27	.64	.89[1]
Concern for Others	4.91	3.73	1.09[3]	-.11
Reputation	4.88	4.00	.73	.56[5]
Desire to Lead	4.80	3.82	.73	.78[2]
Role Models	4.73	3.45	.91[6]	.22
Works with Others	4.73	3.55	1.00[4]	.56[6]
Develops Subordinates	4.59	3.18	1.36[1]	.78[2]
Knowledge	4.59	3.73	.64	.56
Goals through Others	4.53	3.20	1.00[4]	.56
Intelligence	4.45	3.73	.36	.11
Vision	4.45	3.27	1.18[2]	.44
Physician Experience	4.27	3.91	.36	.13
Charisma	4.00	3.91	.09	-.11
Operational Experience	3.91	3.27	.64	.38
Business Experience	3.41	2.55	.73	.63[4]

Note: Factors listed in extent of contribution sequence as rated by NAVMED. Superscripted numerals indicate the six highest Disparity scores.

Table 23
Leadership Shortcomings as Perceived by Line Respondents

	MEAN SCORE		
Factor	Contribution	Degree Exhibited	Disparity
Judgement	5.00	4.11	.89[1]
Reputation	4.96	4.33	.56[5]
Knowledge	4.83	4.22	.56
Desire to Lead	4.83	3.78	.78[2]
Value System	4.78	4.67	.11
Works with Others	4.78	4.00	.56
Develops Subordinates	4.67	3.78	.78[2]
Physician Experience	4.67	4.63	.13
Role Models	4.58	4.11	.22
Concern for Others	4.56	4.44	-.11
Goals through Others	4.44	3.67	.56
Intelligence	4.39	4.00	.11
Vision	4.22	3.78	.44
Operational Experience	4.11	3.75	.38
Business Experience	3.83	3.13	.63[4]
Charisma	3.78	3.89	-.11

Note: Factors listed in extent of contribution sequence as rated by Line. Superscripted numerals indicate the six highest Disparity scores.

Judgement, the most highly ranked factor by the Line, had the highest degree of disparity, though the Degree Exhibited score was quite high at 4.11. Factors with low Degree Exhibited scores and relatively high Disparity scores were: Desire to Lead (3.78 and .78), Develops Subordinates (3.78 and .78), and Goals through Others (3.67 and .56). Vision received a relatively low Degree Exhibited score of 3.78, but was not considered a significant contributor to leadership effectiveness by the Line.

Leadership Shortcomings as Identified by Army, Air Force, Civilian and DVA Respondents

Tables 24 through 27 present information relative to the perceived leadership shortcomings exhibited by Army and Air Force Medical Department Commanders, Civilian hospital CEO's and Department of Veterans Affairs Medical Center Directors.

The high number of Disparity scores above a value of 1.00 suggested that each of these groups were comparatively dissatisfied with the leadership exhibited by the members of their organization. Of the 16 factors evaluated, at least nine had Disparity scores above 1.00 for each of these four groups (compared to five for the NAVMED and zero for the Line). Further, the Army and DVA each had 11 factors (the Air Force and Civilian nine factors each) with Degree Exhibited scores equal to, or less than, 3.50. This is compared to six factors for the NAVMED and only one for the Line.

Among the Army, Air Force, Civilian and DVA, the most notable disparity existed between the perceived importance of the Vision factor and the degree it was exhibited. For the DVA, Civilian, and Army, Vision had the single highest disparity of any given factor (2.00, 1.90 and 1.60 respectively). This is especially meaningful as the factor was highly rated in its perceived contribution to leadership effectiveness by each of the three groups.

The Goals through Others factor was also found to be lacking in each of the four groups. Not only was there a high degree of disparity: Army (1.44), Air Force (1.50), Civilian (1.60) and DVA

Table 24
Leadership Shortcomings for Army Health Care Executives

	MEAN SCORE		
Factor	Contribution	Degree Exhibited	Disparity
Judgement	5.00	3.90	1.10
Reputation	4.94	3.50	1.30[5]
Value System	4.91	3.70	1.20[6]
Knowledge	4.73	3.50	1.38[3]
Works with Others	4.70	3.11	1.22
Role Models	4.68	3.33	1.00
Vision	4.64	3.10	1.60[1]
Concern for Others	4.64	3.33	1.11
Develops Subordinates	4.55	3.00	1.33[4]
Goals through Others	4.58	2.89	1.44[2]
Desire to Lead	4.55	3.50	.56
Physician Experience	4.55	4.33	.22
Intelligence	4.15	3.80	.22
Charisma	3.73	3.20	.50
Business Experience	3.64	2.67	.78
Operational Experience	3.45	3.22	.11

Note: Factors listed in extent of contribution sequence as rated by Army Superscripted numerals indicate the six highest Disparity scores.

(1.27) but each had a Degree Exhibited mean score of less than 3.00. Additional areas of concern within the non-Navy groups were: (a) Army - Develops Subordinates, (b) Air Force - Concern for Others and Reputation, (c) Civilian - Desire to Lead and Value System, and (d) DVA - Reputation and Value System.

Table 25
Leadership Shortcomings for Air Force Health Care Executives

Factor	MEAN SCORE		
	Contribution	Degree Exhibited	Disparity
Concern for Others	4.94	3.38	1.50[1]
Reputation	4.92	3.25	1.50[1]
Role Models	4.88	3.25	1.25[5]
Desire to Lead	4.81	3.25	1.25[5]
Judgement	4.75	3.63	1.13
Value System	4.75	4.00	.75
Works with Others	4.71	3.25	1.25[5]
Knowledge	4.56	3.63	.75
Goals through Others	4.46	2.75	1.50[1]
Develops Subordinates	4.44	3.13	1.13
Physician Experience	4.38	3.75	.63
Vision	4.38	3.00	1.38[4]
Intelligence	4.25	3.75	.25
Charisma	3.75	3.63	.13
Business Experience	3.38	2.13	1.13
Operational Experience	3.00	2.00	1.00

Note: Factors listed in extent of contribution sequence as rated by Air Force. Superscripted numerals indicate the six highest Disparity scores.

Table 26
Leadership Shortcomings for Civilian Health Care Executives

Factor	MEAN SCORE		
	Contribution	Degree Exhibited	Disparity
Judgement	4.90	3.80	1.10
Reputation	4.90	3.70	1.10
Value System	4.90	3.50	1.40[3]
Vision	4.90	3.00	1.90[1]
Intelligence	4.85	3.40	1.30[5]
Desire to Lead	4.75	3.10	1.40[3]
Concern for Others	4.75	3.40	1.20[6]
Works with Others	4.70	3.30	1.10
Knowledge	4.70	4.10	.50
Goals through Others	4.63	2.70	1.60[2]
Role Models	4.43	3.00	1.10
Physician Experience	4.40	3.90	.50
Develops Subordinates	4.30	3.20	.90
Charisma	3.90	3.40	.50
Business Experience	3.75	3.00	.40

Note: Factors listed in extent of contribution sequence as rated by Civilian group. Superscripted numerals indicate the six highest Disparity scores.

Table 27
Leadership Shortcomings for DVA Health Care Executives

Factor	MEAN SCORE: Contribution	Degree Exhibited	Disparity
Judgement	5.00	3.73	1.27[3]
Reputation	4.88	3.18	1.64[2]
Value System	4.82	3.55	1.27[3]
Vision	4.82	2.82	2.00[1]
Concern for Others	4.73	3.36	1.18[6]
Desire to Lead	4.64	3.36	1.18[6]
Works with Others	4.58	3.18	1.09
Role Models	4.57	3.36	.91
Intelligence	4.55	3.64	.73
Knowledge	4.55	3.91	.45
Physician Experience	4.45	3.73	.73
Goals through Others	4.42	2.91	1.27[3]
Develops Subordinates	4.23	3.09	1.09
Charisma	3.73	3.00	.73
Business Experience	3.59	2.73	.64

Note: Factors listed in extent of contribution sequence as rated by DVA. Superscripted numerals indicate the six highest Disparity scores.

Leader Identification

A number of leadership development researchers suggest that it is quite important to identify "high-potentials" (personnel with a high potential for leadership) early in their careers in order to adequately develop them for leadership positions (Ginzberg, 1988; Kotter, 1988; Lombardo, 1982). To determine whether the respondents surveyed concurred with this assessment,

they were asked to express their opinions regarding the early identification of high-potentials.

As seen in the "% of Total" column of Table 28, 58.3% of the respondents surveyed felt that it was very desirable to identify potential leaders early in their careers, and fully 20% considered it essential. Of the six groups, only the Army and NAVMED had respondents who indicated it was not important to identify high-potentials early, though the Air Force and Civilian groups had relatively high percentages of respondents who found it only "Desirable" to identify high-potentials early.

Table 28
Aggregate Response to Importance of Identifying Leaders Early in Their Careers (*N*=60)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Uncertain			9.1% (1)		11.0% (1)		3.3% (2)
Not Important	9.1% (1)		9.1% (1)				3.3% (2)
Desirable	9.1% (1)	37.5% (3)	9.1% (1)	30.0% (3)		9.1% (1)	15.0% (9)
Very Desirable	63.6% (7)	37.5% (3)	63.6% (7)	60.0% (6)	44.5% (4)	72.7% (8)	58.3% (35)
Essential	18.2% (2)	25.0% (2)	9.1% (1)	10.0% (1)	44.5% (4)	18.2% (2)	20.0% (12)
Totals	100% (11)	100% (8)	100% (11)	100% (10)	100% (9)	100% (11)	100% (60)

Respondents were also asked to respond to the question, "In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers?". Just over 96% of the group provided a positive response. Forty-five percent indicated that it was "Almost always" possible, while 51.7% felt it was sometimes possible. As seen in Table 29, the responses were evenly distributed between the six groups.

Table 29
Aggregate Response to Question: "Can Leaders be Identified Early in their Careers?"

Response	Army	Air Force	Navy	Civilian	Line	DVA	Row Totals	
Rarely	No responses in this category							
Seldom			1			1	2	3.3%
Sometimes	5	4	6	6	4	6	31	51.7%
Almost always	6	4	4	4	5	4	27	45.0%
Totals	11	8	11	10	9	11	60	100%

Leadership Identification Methods

In an attempt to identify specific methods of distinguishing personnel with leadership potential, survey respondents were asked to rate the effectiveness of six leadership identification methods. They were also asked to provide, and rate, any

additional leadership identification methods they were aware of. Rating scores ranged from 5, for Extremely effective, to 1 for Not effective. The six leadership identification methods rated were:

1. Interviews and references.

2. Providing challenging job assignments to individuals early in their careers.

3. Assessment of the individual's capacity to develop desired leadership skills and behaviors.

4. Providing individuals the opportunity for exposure to personnel in senior management positions.

5. Use of a formal performance appraisal process.

6. Succession planning (incumbent executive determines what skills, traits and abilities successor will require and selects individual who most closely meets the requirements).

Factor analysis of the six leadership identification variables yielded three factors: Exposure to Executives, Interviews and References and Challenging Job Assignments. Table 30 is a list of the factor variables. Appendix H details the factor analysis results of the leadership identification variables.

Table 30
Leadership Identification Factors

Factor	Component Variables
Exposure to Executives:	(Exposure to Executives + Individual Capabilities + Performance Appraisal + Succession Planning)
Interviews and References:	(Interviews and References)
Challenging Job Assignments:	(Challenging Job Assignments)

Table 31 lists the aggregate responses to the effectiveness of the three leadership identification factors. As seen in Table 31, the use of challenging job assignments to identify personnel with leadership potential was the method of choice for the population surveyed as not one of the 60 respondents surveyed disagreed with, or were uncertain about, its effectiveness. Examination of the Exposure to Executives factor results revealed that 26 (43.3%) of the respondents were uncertain of its effectiveness as a means of identifying leadership potential, though only 3.3% rated it as ineffective. The use of Interviews and References garnered the lowest positive rating among the three factors, as only 36.7% of the respondents rated it as effective, and almost one-fourth (23.3%) rated it ineffective.

Table 31
Aggregate Response to Methods of Identifying Leadership Potential

	RESPONSE			
	Effective	Not Effective	Uncertain	No Response
Challenging Job Assignments	100.0% (60)			
Exposure to Executives	48.3% (29)	3.3% (2)	43.3% (26)	5.0% (3)
Interviews and References	36.7% (22)	23.3% (14)	38.3% (23)	1.7% (1)

Tables 32 and 33 are provided to show the responses to the Exposure to Executives and Interviews and References factors by target group. As revealed in Table 32, the Civilian (60%), Line (75%) and DVA (63.4%) found Exposure to Executives a fairly effective means of identifying leadership potential. Scoring by the remainder of the executives surveyed indicated they were uncertain of that factor's effectiveness. This was especially true for Army and NAVMED respondents, of which at least 60% were uncertain.

Examination of the group responses regarding the Interviews and References factor (Table 33), revealed that only the DVA either clearly favored (54.5%), or was uncertain (45.5%), of the its effectiveness as a means of identifying personnel with

leadership potential. In the other five groups the percentage of respondents who considered the use of Interviews and References to be ineffective ranged from 20% for the Civilian group to 36.4% for NAVMED. However, the NAVMED respondents did have the second highest percentage of respondents favoring the factor as 45.5% rated it an effective means of identifying high-potentials. The Line also had a high percentage of respondents who found the use of interviews and references ineffective (33.3%).

Table 32
Group Response to the Exposure to Executives Factor (*n*=57)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	30.0% (3)	42.9% (3)	36.4% (4)	60.0% (6)	75.0% (6)	63.6% (7)	50.9% (29)
Not effective	10.0% (1)	14.2% (1)					3.5% (2)
Uncertain	60.0% (6)	42.9% (3)	63.6% (7)	40.0% (4)	25.0% (2)	36.4% (4)	45.6% (26)
Totals	100% (10)	100% (7)	100% (11)	100% (10)	100% (8)	100% (11)	100% (57)

Table 33
Group Response to the Interviews and References Factor (*n*=59)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	27.3% (3)	14.3% (1)	45.5% (5)	40.0% (4)	33.3% (3)	54.5% (6)	37.3% (22)
Not effective	27.3% (3)	28.6% (2)	36.4% (4)	20.0% (2)	33.3% (3)	0.0% (0)	23.7% (14)
Uncertain	45.4% (5)	57.1% (4)	18.1% (2)	40.0% (4)	33.3% (3)	45.5% (5)	39.0% (23)
Totals	100% (11)	100% (7)	100% (11)	100% (10)	100% (9)	100% (11)	100% (59)

The formal performance appraisal process. The results of the formal performance appraisal process are used extensively, within the military, as a discriminator in various selection processes (such as, promotion, command, additional education et cetera). Because of its widespread use and importance, it was decided that the Performance Appraisal variable, would be examined separately from the Exposure to Executives factor of which it is a part.

Of the military groups surveyed, only the Line, at 89%, clearly favored the use of formal performance appraisals as a means of identifying personnel with leadership potential (See Table 34). The Air Force and NAVMED each had a relatively high percentage of respondents who were uncertain of the effectiveness

of the performance appraisal process. A dramatic difference was found between the Air Force (12.5%) and NAVMED (27.3%) respondents who felt performance appraisals were effective, and the other four groups (especially the Civilian 50%, Line 88.9% and DVA 63.6%). The relatively low percentage of Air Force and NAVMED respondents who rated the formal performance appraisal process as effective suggests that the use of performance appraisals as a method of identifying high-potentials may be inappropriate within these groups.

Table 34
Group Response to the Performance Appraisal Variable (*N*=60)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	45.4% (5)	12.5% (1)	27.3% (3)	50.0% (5)	88.9% (8)	63.6% (7)	48.3%
Not effective	18.2% (2)	37.5% (3)	18.2% (2)	10.0% (1)		9.1% (1)	15.0%
Uncertain	36.4% (4)	50.0% (4)	54.5% (6)	40.0% (4)	11.1% (1)	27.3% (3)	36.7%
Totals	100% (11)	100% (8)	100% (11)	100% (10)	100% (9)	100% (11)	100% (60)

Leadership Development Methods

The foremost purpose of this study was to identify leadership development methods appropriate for use within the Navy Medical Department. In this portion of the survey, survey respondents rated the relative effectiveness of 17 leadership development methods. They were also asked to provide, and rate, any additional leadership development methods they were aware of. Rating scores ranged from 5, for Extremely effective, to 1 for Not effective. The 17 leadership development methods rated were:

1. Guided job experience (rotating individuals through a variety of jobs on a planned basis)

2. Offering individuals opportunities to practice leadership skills.

3. Providing individuals challenging special projects and assignments.

4. Developing the individual's natural talents (vice trying to duplicate leaders).

5. Mentoring and coaching.

6. Role modeling.

7. Providing individuals instruction on career management for long-term development.

8. Using performance appraisals as a feedback mechanism.

9. Providing feedback regarding developmental progress using methods other than the formal appraisal system.

10. Rewarding actions that support desirable leadership development.

11. Reinforcing, throughout career, ethical base as the source of decisions.

12. Academic degrees.

13. Administrative residencies or internships.

14. Using formal organizational and external leadership/management development programs.

15. Leadership/management classes or workshops.

16. Association with professional organizations.

17. Civic and community involvement.

Factor Analysis. Factor analysis of the 17 variables in this domain produced the six factors listed in Table 35. As noted earlier, the Instruction on Career Development variable was eliminated because it was considered to be measuring the same development method as the Feedback variable (as reflected in the Evaluation of Performance factor).

Table 36 lists the aggregate responses to the effectiveness of the six leadership development factors. Providing individuals the opportunity to practice leadership skills is clearly the method of choice among the leaders surveyed, as 91.7% rated Leadership Experience an effective method of leadership

development. The Coaching and Role Modeling, as well as, the Guided Job Experience factors are also favored by the group as 86.7% and 76.7% respectively rated it effective.

Table 35
Leadership Development Factors

Factor	
Leadership Training:	(Leadership workshops + Leadership development programs)
Coaching and Role Modeling:	(Mentoring and coaching + Role modeling)
Leadership Experience:	(Practice of leadership skills + Challenging special projects)
Evaluation of Performance:	(Performance appraisals + Feedback)
Guided Job Experience:	(Guided job experience + Develop natural talents + Rewarding developmental efforts)
Traditional/Academic:	(Academic degrees + Residencies or internships + Affiliation with professional organizations + Community involvement + Emphasizing professional ethics)

Slightly more than 50% of the respondents rated the Leadership Training and Evaluation of Performance factors as effective methods of leadership development. Also, though very few respondents found these methods to be ineffective, a high percentage were uncertain: 31.7% for Leadership Training and 40.0% for Evaluation of Performance. The Traditional/Academic factor received the highest negative response with 13.3% rating it

ineffective. This factor also had the largest percentage of respondents who were uncertain of its effectiveness.

Table 36
Aggregate Response to Methods of Identifying Leadership Potential (N=60)

	RESPONSE			
	Effective	Not Effective	Uncertain	No Response
Leadership Experience	91.6% (55)		6.7% (4)	1.7% (1)
Coaching and Role Modeling	86.6% (52)		11.7% (7)	1.7% (1)
Guided Job Experience	76.6% (46)		21.7% (13)	1.7% (1)
Leadership Training	56.7% (34)	8.3% (5)	31.7% (19)	3.3% (2)
Evaluation of Performance	55.0% (33)	3.3% (2)	40.0% (24)	1.7% (1)
Traditional/Academic	33.3% (20)	13.4% (8)	50.0% (30)	3.3% (2)

Tables 37 through 42 illustrate group responses to the six leadership development methods by response category (that is, Effective, Not effective, Uncertain). As seen in Tables 37 and

Table 37
Group Response to Leadership Experience Factor (*n*=59)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	81.8% (9)	75.0% (6)	100.0% (10)	100.0% (10)	100.0% (9)	100.0% (11)	93.2% (55)
Uncertain	18.2% (2)	25.0% (2)					6.8% (4)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (9)	100% (11)	100% (59)

38, the distribution of responses regarding the Leadership Experience (Table 37) and Coaching/Role Modeling (Table 38) factors, revealed a high degree of uniformity between the target groups. As seen in Table 39, uniformity of the response distribution continued for the Guided Job Experience factor (except for the two civilian groups who indicated a much higher degree of uncertainty regarding the factor's perceived effectiveness in developing leadership skills).

The two non-military groups also expressed a higher degree of uncertainty regarding the effectiveness of leadership training, especially the Civilian group of which 60% were uncertain (see Table 40). When rating the perceived effectiveness of the Evaluation of Performance factor, only the Line clearly

Table 38
Group Response to Coaching and Role Modeling Factor (*n*=59)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	100.0% (11)	87.5% (7)	90.0% (9)	80.0% (8)	88.9% (8)	81.8% (9)	88.1% (52)
Uncertain		12.5% (1)	10.0% (1)	20.0% (2)	11.1% (1)	18.2% (2)	11.9% (7)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (9)	100% (11)	100% (59)

Table 39
Group Response to Guided Job Experience Factor (*n*=59)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	90.9% (10)	87.5% (7)	80.0% (8)	50.0% (5)	100.0% (9)	63.6% (7)	78.0% (46)
Uncertain	9.1% (1)	12.5% (1)	20.0% (2)	50.0% (5)		36.4% (4)	22.0% (13)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (9)	100% (11)	100% (59)

recommended it as an effective leadership development method, while the Army expressed a high degree of uncertainty (see Table 43). Examining group responses to the Performance Appraisal variable separately from the combined Evaluation Performance factor scores revealed a relatively high percentage of respondents

who rated the use of performance appraisals as an ineffective means of leadership development among the three military medical groups. Of the groups surveyed, only the Line (77.8%) clearly favored the use of performance appraisals as a means of developing leadership ability. The Army, NAVMED, Civilian and DVA groups each had a relatively high percentage of respondents who were uncertain of the effectiveness of developmental feedback obtained from performance appraisals.

Table 40
Group Response to Leadership Training Factor (n=58)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	54.5% (6)	75.0% (6)	70.0% (7)	30.0% (3)	66.7% (6)	60.0% (6)	58.6% (34)
Not Effective	18.2% (2)	12.5% (1)		10.0% (1)	11.1% (1)		8.6% (5)
Uncertain	27.3% (3)	12.5% (1)	30.0% (3)	60.0% (6)	22.2% (2)	40.0% (4)	32.8% (19)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (9)	100% (11)	100% (58)

Table 41
Group Response to the Evaluation of Performance Factor (*n*=59)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	27 3% (3)	62.5% (5)	50.0% (5)	60.0% (6)	88.9% (8)	54.5% (6)	55.9% (33)
Not effective		12.5% (1)	10.0% (1)				3.4% (2)
Uncertain	72.7% (8)	25.0% (2)	40.0% (4)	40.0% (4)	11.1% (1)	45.5% (5)	40.7% (24)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (9)	100% (11)	100% (59)

Table 42
Group Response to the Performance Appraisal Variable (*n*=59)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	27.3% (3)	50.0% (4)	30.0% (3)	40.0% (4)	77.8% (7)	54.5% (6)	45.8% (27)
Not Effective	27.3% (3)	37.5% (3)	30.0% (3)	10.0% (1)	11.1% (1)	9.1% (1)	20.3% (12)
Uncertain	45.4% (5)	12.5% (1)	40.0% (4)	50.0% (5)	11.1% (1)	36.4% (4)	33.9% (20)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (9)	100% (11)	100% (59)

As seen in Table 43, only the Air Force and Line had at least 50% of their respondents rate the Traditional/Academic Development factor as effective. However, the Line also had the highest percentage of respondents who rated the method as ineffective at 37.5%. Noteworthy were the very low percentages of Army (9.1%) and NAVMED (20.0%) respondents who rated the factor as effective and the high percentage who were uncertain (63.6% Army and 80.0% NAVMED).

Table 43
Group Response to Traditional/Academic Factor (*n*=58)

Response	Army	Air Force	Navy	Civilian	Line	DVA	% of Total
Effective	9.1% (1)	50.0% (4)	20.0% (2)	40.0% (4)	50.0% (4)	45.5% (5)	34.5% (20)
Not Effective	27.3% (3)			20.0% (2)	37.5% (3)		13.8% (8)
Uncertain	63.6% (7)	50.0% (4)	80.0% (8)	40.0% (4)	12.5% (1)	54.5% (6)	51.7% (30)
Totals	100% (11)	100% (8)	100% (10)	100% (10)	100% (8)	100% (11)	100% (58)

IV. DISCUSSION

A discussion of the study findings is presented in the same five sections used to present the study results: General Leadership, Leadership Attributes Required, Leadership Shortcomings, Leader Identification, and Leadership Development

Methods. Within each of the five sections, applicable study objectives (enumerated in the Current Study Section of this paper) are posed as questions in an effort to focus the discussion.

General Leadership

Is there a need for more effective leadership in the health care system as a whole?

The findings of this study strongly indicate that the perceived need for more effective leadership in the health care system is widespread, as 96% of the health care leaders surveyed agree that more effective leaders are required. This finding is somewhat contradicted by the fact that 71% of the health care executives polled believe there are enough leaders, within their respective organizations, qualified to provide effective leadership. This finding may imply that health care executives do not lead as effectively as they might, even though they have the necessary skills.

Is their a need for more effective leadership within the Navy Medical Department?

Based on their attitudes, both NAVMED and Line respondents are satisfied with the effectiveness of the leadership exhibited by the Commanding Officers of Navy Medical Department treatment facilities. However, less than half of the NAVMED and Line respondents believe there are currently enough leaders qualified to provide effective leadership within the Navy Medical

Department. The latter finding clearly supports the Medical Blue Ribbon Panel recommendation, regarding leadership development, which implies there is a shortage of executives qualified to provide effective leadership within the Navy Medical Department.

In looking at the other four groups assessed, the findings indicate that health care executives from the Army, Air Force, Civilian and DVA are relatively dissatisfied with the leadership exhibited by the members of their organization.

Leadership Attributes Required

Is there consensus on which attributes contribute most to leadership effectiveness? Is there a "leadership profile" that exemplifies the type of leader needed in today's health care environment?

The low degree of variance in the leadership factor scores (as measured by the Standard Deviation scores associated with the assessment of the relative importance of each leadership factor) provides strong evidence that there is a high degree of consensus, by group and in aggregate, as to the relative importance of each leadership factor. This finding supports the notion that the leadership requirements among the health care groups surveyed, especially the military groups, are indeed quite similar to those identified by the Navy Medical Department.

Analysis of the leadership factor assessments, by target group, reveal several ranking differences, however, only two of

the differences are statistically significant ($p < .03$). Both of these differences are between the NAVMED and the Civilian groups and involve the Vision and Intelligence factors. In comparing the leadership factor assessments provided by NAVMED and Line respondents, no statistically significant differences were observed.

Table 44 lists the six most important contributors to effective leadership as identified by the NAVMED and Line respondents, and the health care executives as a group. The factors are listed in descending order based on the relative importance of the attribute (as determined by the contribution to leadership ability mean scores presented in Table 17).

As seen in Table 44, all but one of the leadership factors identified by NAVMED respondents (Works with Others) may be categorized as personal characteristics. Among the six leadership factors considered most important by Line and health care executive respondents, four are considered personal traits.

Table 44
Leadership Attributes Ranked in Order of Importance

RANK	Navy Medicine	Line	Health Care Executives
1	Value system	Value system	Judgement
2	Judgement	Reputation	Value system
3	Concern for others	Desire to lead	Reputation
4	Reputation	Knowledge	Concern for others
5	Desire to lead	Value system	Vision*
6	Works with others	Works with others	Knowledge

* Note: Vision was ranked 11th for NAVMED and 13th for Line.

A recent study conducted by Stefl, Tucker and Halstead (1989) supports the overall leadership factor assessment offered by the NAVMED. In their study, Stefl et al. surveyed 288 Executive Board Chairmen across the country in an effort to determine which characteristics contributed most to their hospital CEO's ability to effectively lead and manage. Consistent with the findings of this study, Stefl and associates found that personal characteristics, as a group, were considered the most important contributors to effective leadership and management in hospitals. Also consistent with the findings of this study, the desirability of both specific and broad based experience was minimized by the Board Chairmen surveyed (1989).

A brief discussion of the importance of each of the six leadership factors, listed in Table 44 under the Navy Medicine column, follows.

Value system. The relevance of personal and professional values in health care administration is obvious. Health care leaders must be able to balance mission driven goal oriented behavior with a strong value system that has the public good in mind. According to Kinzer, (1986) in health care the important thing is not who is right but what is right. The leader must be the center of values in an organization, "He or she has to be the one who stands up and says: This is what I stand for, and this is what the institution is going to stand for." (Robinson, 1988, p. 99).

Judgement. Judgement, or the ability to make sound decisions, in the face of limited information, great turbulence, and unanswered questions, is also stressed as an important leadership attribute (Kotter, 1988; Pointer, 1986). In reflecting on the importance of judgement one must consider how it is developed. One theory, popularized by a catch-phrase attributed to General Omar Bradley, appears quite sound: "judgement comes from experience and experience comes from bad judgement" (Quoted by Bennett and Tibbitts, 1989).

Concern for others. Concern for others, as reflected by a commitment to maintaining the highest health care standards

possible and a sensitivity to people and human nature, was highly rated by both the NAVMED respondents and health care executives as a group. This finding is not surprising, as a sincere concern for the welfare of people is a guiding tenet within the health care field.

Reputation. Leaders are successful by using the credibility and relationships developed during a career (Kotter, 1988). A credible leader has a reputation for: meaning what he says, for being accountable for his actions and the actions of those he leads, and for being totally honest (Drucker, 1988; Rickover, 1979; Rosencrans, 1988).

Desire to lead. Leaders must exhibit a strong desire to lead and be willing to work hard. They must be positive, persistent and patient in their efforts (Ginzberg, 1988; Kelley, 1988; Roberts, 1989).

Ability to work with others. Effective leaders must be able to develop credible relationships, with a broad set of people, fairly easily and quickly (Kotter, 1988). They must be able to communicate with clarity, depth, interest and excitement to large and diverse groups of individuals (Kelley, 1988; Pointer, 1986). In order to work effectively with others, leaders must exhibit a sincere interest in their staffs--learn their capabilities, limitations, concerns, ambitions, how they communicate, and how they approach problems (Trost, 1988).

Leadership Shortcomings

What are the specific leadership shortcomings as identified by the Navy Medical Department, the Line, and health care executives as a group?

Table 45 is a list of the leadership factors found to be most lacking in the health care leaders assessed. The factors are listed in descending order (most lacking first) as assessed by the NAVMED, Line and health care executives as a group.

Leadership Shortcomings Identified by the Navy Medical Department

As previously stated, the NAVMED respondents were relatively satisfied with the leadership exhibited by the Commanding Officers under assessment as indicated by their responses to the general leadership statements. However there were several leadership factors which were perceived to be exhibited to a low degree (as reflected by the leadership factor Degree Exhibited mean scores). The most notable of these factors are: Develops Subordinates, Vision, and Concern for Others. Further, two of the factors found wanting in Navy Medicine Commanding Officers, were considered important contributors to leadership effectiveness by the NAVMED: Concern for Others and Works with Others.

Leadership Shortcomings Identified by the Line

An assessment of the Line's perception of the general effectiveness of leaders within the Navy Medical Department, suggests that they too are relatively satisfied with the

leadership performance of Medical Department Commanding Officers. However, they (along with the Navy Medicine respondents) perceive the ability to develop subordinates, the ability to work with others and vision as leadership attributes which are exhibited to a relatively low degree by the Navy Medical Department Commanding Officers they are familiar with. In considering the Line's assessment, it is important to note the high degree of variability among their responses when compared to the other five groups under study. As previously noted, the high degree of variance strongly suggests one of following: (a) Line respondents are rating individuals from different populations, (b) there is a high degree of variability in the extent that leadership skills are exhibited by Navy Medical Department executives, (c) the Line respondents surveyed are not sufficiently familiar with Navy Medical Department executives to accurately assess their leadership abilities.

The latter possibility is most probable as many Line officers were only peripherally involved with Medical Department Commanding Officers prior to the Medical Department reorganization effected in October 1990.

<u>Leadership Shortcomings Identified by Health Care Executives as a Group</u>

In this group the most notable disparity existed between the perceived importance of the Vision factor compared to the degree

it was exhibited. This highly rated attribute had the negative distinction of being the factor with the single highest Disparity Score within the DVA, Civilian, and Army groups.

The Goals through Others factor was also found to be lacking by the members of this group. A significant contributor to this finding is the low Degree Exhibited score of the Ability to Take Risks variable (a component of the Goals Through Others factor). For the health care executives as a group, the Ability to Take Risks variable had the highest Disparity score of any single variable (with the exception of the Vision variable which is also a factor). Within the NAVMED, the Ability to Take Risks variable had the **highest** Disparity score of any variable or factor.

Finally, as seen in Table 45, the Develops Subordinates, and Works with Others were also noted as significant leadership shortcomings by the health care executives as a group.

The leadership attributes found lacking in the health care leaders assessed in this study have been clearly identified as significant contributors to leadership, by successful leaders as well as leadership researchers and experts. Below is a brief discussion of several of the leadership attributes, perceived to be deficient in the NAVMED Commanding Officers assessed, not previously discussed under the Leadership Attribute section above.

Table 45
Leadership Shortcomings Ranked in Descending Order

Navy Medicine	Line	Health Care Executives
Develops subordinates	Judgement	Vision
Vision	Develops subordinates	Goals through others*
Concern for others	Desire to lead	Reputation
Goals through others*	Business experience	Develops subordinates
Works with others	Reputation	Works with others
Role models	Works with others	Judgement

* Note: Ability to take risks is a key component of this factor.

Develops subordinates. In a personal interview, Colonel Jack Murphy USAF, Retired, past Chief of the Air Force Medical Service Corps, stated that one of the primary responsibilities leaders have is the development of their subordinates (October, 1989). Maccoby (1981), supports this statement by declaring that the best of all leaders are those that develop their staffs so they eventually will not need them.

"The CEO and the top management team must give emphasis to 'people development' as a way to increase the organization's pool of potential leaders . . ..", (Bennett & Tibbitts, 1989, p. 67) However this is seldom done. Accord to Pearson (1987), while most executives agree with the need to adequately develop subordinates, they are unwilling to adopt the tough aggressive approach to managing required to implement and maintain an effective subordinate development program.

Vision. It is interesting to note that the ability to provide visionary leadership was ranked very highly by the Civilian and DVA groups though it was considered relatively unimportant by the military groups, especially the NAVMED, Line and Air Force. The low factor scores assessed by the military groups is surprising considering the importance many researchers, as well as, leadership experts and practitioners, place on this attribute (Bennett & Tibbitts, 1989; Bennis, 1989a, 1989b; Kotter, 1988; Rosencrans, 1988; Taylor & Rosenbach, 1989).

According to Sashkin, visionary leadership IS effective leadership (1986). This bold assertion is supported by researcher Warren Bennis. In a study of successful leaders from a number of diverse professions, Bennis found vision to be the characteristic that most distinguished them from their peers (1989a).

In a complex and changing environment, the successful leader must be one of vision. A visionary leader according to Kotter, (1988) is able to process massive amounts of information and see interesting patterns and new possibilities. In the health care sector effective leaders must create a vision of where the organization is going, and clearly define that vision to their staffs (Atchison, 1988). To simply have a vision, however, is insufficient. To sustain people's commitment to work on behalf of an organization, its vision should be ennobling--should embrace

some social good beyond mere institutional survival (Seaver & Edgar, 1990).

General Rosencrans, USAF, Retired, suggests that few military leaders exhibit this trait and are thus unable to see beyond tomorrow (1988). In the recent past, most military health care leaders have been developed/trained to maintain and function in a complex bureaucratic environment. Such leaders are not required to have vision, are not required to be truly innovative, are not prepared to take risks and accept and learn from failure. Today's military health care leaders, are being asked to perform and behave in a capacity they are unprepared for and in a manner, which until recently, was unacceptable.

Risk taking. Tied closely to vision, the ability and latitude, to take calculated risks is essential in today's complex and ever changing health care environment. Risk taking according to Pointer, (1986) is the mindset in which executive reach continually exceeds executive grasp. To be effective, leaders must be willingly to take risks, to make decisions "somewhere short of certainty" (Bennis, 1989a, p. 96).

For their part, organizations must encourage educated risk taking. More importantly, organizations must accept mistakes if they are to prosper (Bennis, 1989b).

Leader Identification

Is Navy Medical department recruiting enough people with the potential of someday providing effective leadership?

In response to this question, the findings of this study are inconclusive. Only 45.5% of the NAVMED and 44.4% of the Line respondents agreed that a sufficient number of personnel with the potential to provide effective leadership are being recruited. These low percentages suggest that Navy Medicine may need to put more effort into recruiting potential leaders. However, the relatively high percentages of respondents who were uncertain of the effects of Navy Medicine's recruiting efforts, (NAVMED 36.4% and Line (33.3%) coupled with the low percentages of respondents who clearly felt that Navy Medicine's recruiting efforts were ineffective, (NAVMED 18.2% and Line 22.2%) contradict this assertion. According to one survey respondent, "Identifying potential isn't the problem--developing it is".

The importance of identifying personnel who exhibit the potential for leadership early in their careers is strongly supported by the findings of this study. Fully 78% of those surveyed agreed with leadership experts in their contention that personnel with the potential to become high level leaders must be given the opportunity to adequately develop their skills (Ginzberg, 1988; Kotter, 1988; Lombardo, 1982). Further, almost half of the respondents indicated that it is "almost always"

possible to identify high-potential personnel early in their careers.

What are the methods of identifying individuals with leadership potential that are appropriate for use within the Navy Medical Department?

Of the methods of identifying leadership potential assessed in this study, the use of interviews and references was considered the least effective within each target group and by the group as a whole. Less conclusive were the findings related to the effectiveness of providing potential leaders the opportunity for exposure to senior executives. Though Exposure to Executives, as a method of identifying leadership potential, is strongly supported by the Civilian, Line and DVA, the NAVMED and Army expressed a high degree of uncertainty as to its effectiveness within their organizations. Therefore, Exposure to Executives may, or may not, be an effective and appropriate method of high-potentials leaders within the Navy Medical Department.

Easily the method of choice for identifying leadership potential within all groups, is the use of challenging job assignments. Interesting though is the very low rating assigned to the performance appraisal process--the most logical and appropriate method of formally assessing job performance. Only the Line and DVA supported the use of performance appraisals, while the members of the other four groups considered it

ineffective or were uncertain as to its effectiveness. This finding supports the widespread (grass roots level) perception that performance appraisals (within the Navy Medical Department) are generally inflated, and thus are unreliable assessments of leadership performance and potential. Only 27.3% of the NAVMED respondents and 12.5% of the Air Force respondents, found the use of performance appraisals to be an effective method of identifying leadership potential. The very low percentage of Air Force and Navy respondents who rated the formal performance appraisal process as effective suggests that the use of performance appraisals for the identification of high-potentials may be inappropriate within these groups.

Leadership Development Methods

Are our leaders being adequately trained and developed?

The findings of this study strongly indicate that health care organizations need to concentrate more effort on leadership development. For the group of health care executives as a whole only 64.7% believe their organizations are adequately developing future leaders and only 68.6% feel their organizations had adequately prepared them for their positions as organizational leaders.

For the Navy Medical Department the findings are not as clear. Fully 72% of the NAVMED respondents felt leadership development efforts were adequate and 81.8% felt the Navy Medical

Department had adequately prepared them to serve as Commanding Officers. These very high percentages are somewhat surprising considering only 45.5% of the NAVMED respondents believe there are a sufficient number of leaders with the qualifications to provide effective leadership within the Navy Medical Department. Further, the high ratings attributed by the NAVMED are tempered by more conservative Line assessments. Only 55.6% of Line respondents found current NAVMED leaders to be adequately prepared for their roles as Commanding Officers. Finally, the ability to develop subordinates--a highly rated leadership attribute--was the attribute found most wanting in Navy Medical Department Commanding Officers by the NAVMED, and the factor ranked second in degree of disparity by the Line (this statement is based on the factor Disparity scores assessed by the NAVMED and Line as seen Table 22).

What are methods of leadership development considered most effective by the groups surveyed? Are they appropriate for use within the Navy Medical Department?

Of the six leadership development methods assessed, the top three were: Leadership Experience, Coaching and Role Modeling, and Guided Job Experience.

Experience. The effectiveness of experience in developing leaders was uniformly rated by the groups under study. Almost 92%

of all respondents, and 100% of NAVMED respondents, rated this an effective leadership development method.

This assessment is well supported by the literature. An unpublished study on leadership assessment conducted by the Army, suggests that honest experience, including mistakes, provides the catalyst for leadership growth and development (U.S. Army). Noted researcher Bernard Bass (1981), offers further support in contending that leaders develop as leaders, by performing as leaders; that leaders are promoted to higher levels of leadership based on past performance and the promise of future performance. The maxim--judgement comes from experience and experience comes from bad judgement--says it all.

Role modeling, Mentoring and Coaching. This factor is also highly recommended, as 86.7% of respondents as a group, and 90% of NAVMED respondents, found it to be an effective method of leadership development. In addressing the importance of role modeling, mentoring and coaching, Maginnis (1987) says it best:

> "In subordinate development the leader must begin by being a role model. He and each subordinate must agree on the behavioral tendencies and values that will support the subordinates professional goals. Then the leader must establish a command climate that supports the development process, providing stressful experience and consistently rewarding actions that support the development of desirable ends" (p. 12).

Guided Job Experience. For the respondents as a group, as well as the NAVMED, there was a higher degree of uncertainty as to

the effectiveness of Guided Job Experience when compared to the other top rated methods of leadership development. However, almost 80% of the NAVMED respondents, and 78% of the group as a whole, indicated this was an appropriate method of developing leadership skills.

The appropriateness and necessity of a directed development process is stressed by Kotter. According to Kotter, (1988) to be effective, leadership development must be a "purposeful, sequential and progressive process." In making job assignments for developmental purposes, emphasis is placed on developing the required leadership skills, knowledge, and attributes for present positions, while establishing the foundation for continuing leadership development in preparation for positions of increased authority (Kotter, 1988, p. 123). In determining developmental job assignments, the developmental aspects of a position should be considered, and candidates should be screened and evaluated for leadership potential.

Evaluation of Performance. In theory, performance appraisals should be as much a discussion of the subordinate's next job as they are an assessment of how they are doing in their current job (Bisesi, 1983). As such, the appraisal process is closely linked to guided job experience. However as previously stated, the widespread use of performance appraisals for selection purposes within the highly competitive military environment, all but

precludes their use as a effective means of providing performance feedback. This could explain the relatively low level of support the use of Performance Appraisals received from NAVMED respondents and health care executives as a group. Given the planned downsizing of the military force over the next few years (based on the democratization of Eastern Europe) the promotion process should become even more competitive in the future. As such, the use of performance appraisals as a feedback mechanism could have catastrophic effects on the military officers' opportunity for promotion.

Traditional/Academic Development. Only 33.3% of the respondents as a group, and 20% of the NAVMED leaders, rated this an effective method of leadership development. This finding is somewhat surprising considering the high level of academic achievement, and the extensive professional association involvement, of the respondents as a group. However, the literature provided strong support for their assessment.

Harvard Business School professor John Kotter, states that the shortage of leaders in the business world is a direct result of our educational system which is structured to produce more or less technically competent, socially naive people (As quoted in Kinzer, 1986). Kinzer, considering the developmental requirements of health care leaders, states, "I don't know whether it is possible to prepare anyone academically for what hospital CEOs now

confront on the job" (1986, p. 6). The late Admiral Rickover, was more certain when he wrote that it is impossible to "teach" leadership in schools, in books, or in articles (1979).

Leadership Training. A 1977 study of leadership training, reported by Bass (1981), provided evidence that leaders, trained in the use of certain operationally defined leadership styles, used those styles appropriately, thus demonstrating that leaders can improve their skills in certain leadership behaviors. Studies such as these and the extensive use of LMET courses within the Navy may have influenced the 70% of the NAVMED respondents who rated Leadership Training an effective method of leadership development.

However, as suggested by Kinzer (1986) and Rickover (1979), the effectiveness of Leadership Training may be limited. According to Buck, (1981) leadership training may be appropriate for inculcating a knowledge of basic responsibilities and the rudimentary skills necessary to direct the work of others. However, as previously identified, the majority of the attributes found most lacking in the health care leaders assessed in this study, are interpersonal skills--learnable but not teachable (Bennis 1989a, 1989b; Kotter, 1988). Attila the Hun is said to have preached that "Teachable skills are for Huns, learnable skills are for Chieftains" (Roberts, 1989, p. 110). The notion that leadership training may not be an effective method of

developing more advanced leadership skills may have been considered by the health car executives surveyed as only 56.7% of the group as a whole considered it an effective method of developing subordinates.

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. There is clearly a need for more effective leadership within the Navy Medical Department and the other health care groups under study. Further, the specific leadership shortcomings identified by NAVMED and Line respondents are not unique to the Navy Medical Department.

2. According to NAVMED respondents, personal characteristics contribute most to a Commanding Officer's ability to provide effective leadership within a Navy treatment facility. This evaluation is generally consistent with the assessments of the other health care executive groups surveyed as well as the Line.

3. The leadership attributes found most lacking in Navy health care executives are, for the most part, interpersonal skills. However, there also appears to be a need for visionary leaders who are not averse to taking calculated risks.

4. It is uncertain whether the NAVMED is identifying personnel, with the potential to provide effective leadership in top executive positions, early enough in their careers to allow for the development of leadership skills. However, the use of

challenging job assignments appears to be an appropriate and readily available, method of identifying leadership potential.

5. The most appropriate method of developing the leadership skills Navy health care executives require is through experience.

6. The Navy Medical Department must place additional emphasis on the leadership development process and Navy Medical Department leaders must become more actively involved in the development of subordinates.

7. The leadership development process, must be an individualized plan carried out under the supervision and guidance of a leader who acts as mentor and role model. The development process must allow for, and require, frequent and candid feedback on performance. Table 46 lists the precursors to an effective leadership development program in summary form.

Table 46
Precursors to Effective Leadership Development

Early identification of development needs
Ability to identify developmental needs
Time and effort devoted to the leadership development process
Organizational climate that supports the development process
Training that is a purposeful, sequential and progressive process

Recommendations

1. The Navy Medical Department must maintain high recruiting standards to ensure an adequate influx of high potential people suited to a career in the military.

2. Current leaders must be required to devote the time and effort necessary to identify personnel with the potential to provide effective leadership in executive positions.

3. In determining job assignments, a candidates mentor should work closely with his or her Detailer to closely match the needs of the organization with the developmental needs of the individual.

4. Treatment facility commanding officers as well as, Navy Medicine as a whole, must establish a command climate that supports the leadership development process by providing stressful experience, allowing for honest mistakes, and consistently rewarding actions that support the development of desirable skills.

5. Navy Medicine should form an Executive Development Committee composed of senior officers from each of the four Medical Department Corps. This committee would be tasked to determine what skills Navy Medical Department leaders will require in the year 2000 and what developmental experiences these future leaders could benefit from. The Executive Development Committee

should be presented the findings of The Future of Health Care in the 21st Century (Flossman, 1990) report and any other pertinent information available, to facilitate the development of their projections. The senior officers within the Medical Service Corps should take the recommendations of the Executive Development Committee and determine the future leadership requirements specific to Medical Service Corps Officers (as should the other three Corps).

6. The Navy Medical Department should conduct symposia on the significant events and major learnings of successful executives. These symposia should be informal and conducted by the executives themselves.

7. The Navy Medical Department should establish an Executive Mentoring Program. Each new officer should be assigned to a mentor who meets with the him or her a least once a month (say for breakfast or lunch). During the meetings, the mentor would advise the officer on his or her most pressing problems, and at the same time interject executive management's perspective. Besides getting advice, active mentorship would allow new officers to learn the military system more quickly and understand how successful officers attack problems. (Note: Recommendations 5, 6 and 7 were adapted from a list provided by Taylor & Rosenbach (1989, p. 28).

Summary

As suggested by this study, the perceived lack of leadership in the Navy Medical Department is representative of the leadership crisis facing the entire health care system, and this nation. In speaking to the lack of leadership in this country Irving Kristol states: "American people want to be governed by a resolute, self confident, articulate leadership--a leadership that knows where it is headed and can explain in a forthright way just how it proposes to get there" (Kristol, 1983).

The same can be said about the Navy Medical Department. The need for more and better access to health care coupled with spiraling health care costs, have placed this country in the midst of a health care revolution which is forcing a dramatic change in the health care system as we know it. Resource constraints and increased demands for care place the Navy Medical Department in an environment that is a microcosm of the health care system as a whole. Finding solutions to the health care problems of today requires visionary leaders who are willing to take the risks inherent in the innovative approaches required; leaders who are able to communicate their vision to personnel at each level of the organization; leaders who have strong value systems and are willing to change everything, except what they believe in; and leaders who have the credibility necessary to inspire subordinate trust and commitment. Finally, effective leadership within the Navy Medical Department is possible only if honest mistakes, even failure, is tolerated on the part of its leaders.

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Appendix A

Traits, Interpersonal Skills, Behaviors, Activities and Knowledge Identified as Being Characteristic of Effective Leaders

PERSONAL TRAITS

Intellectual capacity - Keen mind, moderately strong analytical ability, capacity to think strategically and multidimensionally, detail-mindedness.

Judgement - Ability to make sound decisions in the face of very limited information, great turbulence, and unanswered questions.

Drive/determination - Willingness to work hard. Persistence and determination to accomplish goals.

Strong desire to lead - Implies a highly motivated and self-confident person who desires to acquire and use power to achieve things through others.

Enthusiasm.

Self confidence - high self esteem.

Assertiveness

Self Discipline - Demonstrates self control in stressful situations.

Selflessness - Subordinates the good of self to the good of the organization and others.

Honesty/Integrity - Totally honest. Broadly values all people and groups. Integrity is beyond question.

Accountability - Willing to be held accountable for the actions of those he/she leads.

Value System - Implies the ability to balance mission/market driven goal oriented behavior with a strong value system that has the public good in mind. The important thing is not who is right but what is right.

Reputation - Leaders are successful by using the credibility and relationships developed during a career.

Credibility - Implies the ability to motivate/sell, to achieve consensus, to change attitudes, to elicit voluntary actions

among peers or subordinates which fit the intent of the leader and the goals of the organization.

Charisma - Able to attract and maintain the large network of people necessary to accomplish goals.

Vision - Ability to see (or recognize in suggestions from others) interesting patterns and new possibilities, to see beyond tomorrow, to envision what the organization can become.

BEHAVIORS AND INTERPERSONAL SKILLS

Ability to Communicate - Ability to articulate the mission, to communicate vision and purpose with clarity, depth, interest and excitement to large and diverse groups of individuals. Ability to decipher and explain situations so that all subordinates will understand the leader's perspectives.

Ability to listen - Implies a sincere interest in the needs and concerns of others.

Courage - Fortitude to pursue unpopular objectives in the face of adversity.

Strong work ethic - Works hard and devotes extra effort to the job.

Commitment to job - Demonstrates a personal commitment to the present job.

Commitment to quality - Demonstrates a sincere commitment to maintaining the highest possible health care standards.

Consideration - Exhibits concern for the welfare of members of the staff.

Sincere interest in staff - Ability to learn staff capabilities, limitations, concerns, ambitions, how they communicate, and how they approach problems.

Empathetic - Exhibits sensitivity to people and human nature.

Accessible - Spends time on the floors visiting staff and patients.

Ability to coordinate disparate efforts.

Ability to work with others - Ability to develop credible relationships with a broad set of people fairly easily and quickly. Ability to work with others in the organization. Ability to work with others in the organization and field.

Expresses appreciation for good work - Recognizes and rewards individuals who most express the values that underpin the mission. Explains to people how valuable their contributions are.

Ability to take risks - Mindset in which executive reach continually exceeds executive grasp.

ACTIVITIES

Delegation of authority - Must be able to get things done through people.

Leadership by Example (Role Models). Articulates and reinforces personal and organizational values through personal actions (that is, honesty, morality, job done right the first time, et cetera).

Develops Staff - Cultivates people as the most important resource of the organization, helps people so that they eventually don't need him.

Mentoring and Coaching - Provides subordinates guidance, advice and feedback related to career and professional development.

KNOWLEDGE (PROFESSIONAL COMPETENCE)

Business knowledge - Knowledge of industry (market, competition, products and technologies).

Organizational knowledge - Knowledge of the company (the key players and what makes them tick, the culture, the history, and the systems).

Knowledge of the organizational environment - Groups and activities supported (Operational units (military), special interest groups, patient populations, regulators and regulations).

Broadly based health care management experience (Strong track record in a broad set of activities) - Experience in many and diverse segments of the industry (for civilians - market research, accounting, inventory control, and competitive analysis) (for military - patient administration, finance, materials management and personnel management).

Specific Experience

Experience working with physicians.
Financial management experience - Ability to recognize the financial implications of management decisions.

Contract management experience - Ability to develop and manage, various contractual medicine enterprises, (civilian - HMO's PPO's) (military - Internal and External Partnerships.

Community and civic leadership experience.

Knowledge of management skills

Planning - Ability to decide in detail who, what, where, when, how, and why.

Organizing - Ability to define and structure the leader's and subordinate's role toward goal attainment.

Controlling - Ability to control events directly and through others.

Monitoring - Ability to assess the effectiveness of current courses of action and take corrective action.

Appendix B

Identification of Leadership Potential

Precursors to an Effective Program for Identifying Personnel with High Leadership Potential

High recruiting standards - Helps bring in enough people with basic leadership potential--integrity, intelligence, empathy, energy, and some drive to lead.

Ability to identify high potential people - The firm's executives require the capacity to identify people with leadership potential.

Tolerating and understanding the need for a wide variety of managerial styles, traits, abilities et cetera.

Devoting a sufficient amount of time and effort to the high-potential identification process.

Methods of Identifying High-potential Staff Members

Interviews and references - A potential executives character can be assessed by interviews and references. Good evidence of character is available only through references or extended contact.

Provide challenging job assignments to people early in their careers and the leaders will emerge and grow.

Discussing developmental needs with employees to determine joint plans for accomplishing goals.

Identifying the individual's capacity to grow. The individual's mind should constantly reach out as experiences expand.

Exposure to senior management levels - Offer people the opportunity for exposure to personnel in higher levels of management.

Performance appraisal process - Evaluation of past performance.

Succession planning - Incumbent executive determines what skills, traits and abilities his successor will require and selects the individual who most closely meets the requirements.

Appendix C
Leadership Development

Precursors to Effective Leadership Development

Early identification of development needs. Helps develop in people a broad understanding of the industry and organization and establishes the foundation for continuing leadership development in preparation for positions of increased authority.

Ability to identify developmental needs. The organization's executives require the capacity to identify the developmental needs of people with leadership potential.

Willingness of the organization to spend the necessary time and effort on the leadership development process.

An organizational climate that supports the leadership development process, (organizational culture and work environment).

Understanding that Leadership training must be a purposeful, sequential and progressive process. Leadership development is a process by which skills and capacities gained in one stage prepare the leader for new and bigger tasks and responsibilities in later stages.

Rewarding executives for developing subordinates.

Methods of Leadership Development

Development of individual (natural) talents.

Guided job experience (rotation through a variety of jobs on a planned basis). Planned development helps develop a broad set of good working relationships, an excellent track record and reputation, as well as, some higher-level intellectual and interpersonal skills.

Use of lateral transfers inside divisions for developmental purposes.

Use of lateral transfers across divisions for developmental purposes.

Opportunities to practice leadership skills. Honest experience, including mistakes, provides the catalyst for leadership growth and development.

Challenging opportunities used to retain and motivate high-potential personnel.

Special projects/assignments.

Adding responsibilities to the current jobs of high-potential people for developmental purposes.

Providing stressful, job related experience, for developmental purposes.

Individualized Guidance

Mentoring and Coaching.

Role modeling.

Training as an understudy.

Leadership assessment and feedback

Performance appraisal process as a feedback mechanism.

Giving high-potential staff members instruction on how to manage their own careers for long term development.

Giving feedback to subordinates regarding developmental progress. using methods other than the formal appraisal system.

Consistently rewarding actions that support the development of desirable ends.

Leaders must be prepared for difficult choices by reinforcing, throughout their careers, the ethical base as the source of decisions.

Education and Training programs

Use of intra-organization academic and management training programs.

- Academic degrees
- Formal apprenticeship or leadership internship
- Formal classes or workshops

The organization's participation in external academic and management training programs.

- Academic degrees
- Formal apprenticeship or leadership internship
- Formal classes or workshops
- Association with professional organizations
- Civic involvement

Appendix D

Surveys

LEADERSHIP QUESTIONNAIRE

ORGANIZATIONAL INFORMATION

Type of Medical Treatment Facility (Circle one):

Hospital Medical Clinic Dental Other (Specify) _____

Number of outpatient visits per year: _____ Number of beds: _____

PERSONAL INFORMATION

GENERAL

Years of Naval Service: _____ Years in current position: _____

Years in the health ( ) field: _____ Medical Specialty: _____

Years of experience in health care administration: _____ Sex: ____ Age: ____

EDUCATION (Complete all that apply)

Bachelors Degree (Specify Major): _____

MBA ____ MHA ____ Other Graduate degree (Specify): _____

Doctorate (Specify): _____

Have you attended a Staff or War College? _____ (If yes specify): _____

List significant leadership/management development courses you have attended:

1. _____ 3. _____

2. _____ 4. _____

JOB ASSIGNMENTS

List your five most recent job assignments:

1. _____ 4. _____

2. _____ 5. _____

3. _____

IDENTIFYING AND DEVELOPING LEADERS

Please read the following statements and decide to what extent you agree or disagree with each. Indicate your decision by circling the appropriate letter based on the following scale.

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

1. There is a need for more effective leadership in this nation's health care delivery system as a whole. . . . . A B C D E

2. There is a sufficient number of personnel in the Navy Medical Department with the qualifications to provide effective leadership.. A B C D E

3. The Navy Medical Department did a good job of preparing me to be a Commanding Officer.. . . . . A B C D E

4. The Navy Medical Department is doing a good job of developing its future leaders.. . . . . A B C D E

5. The Navy Medical Department is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top executive positions. . . . . A B C D E

LEADERSHIP ATTRIBUTES

Directions: For each of the attributes listed below, please provide TWO ratings.

FIRST--In column I, please rate each attribute's contribution to a Commanding Officer's ability to provide effective leadership in a medical treatment facility (MTF) setting. Circle a rating between 1 (Not Important) and 5 (Essential).

SECOND--In column II, indicate the degree that Navy MTF Commanding Officers exhibit each attribute. Circle a rating between 1 (lowest degree) and 5 (highest degree).
Note: Consider the Navy Medical Department Commanding Officer community as a whole.

	COLUMN I: Attribute's Contribution to Leadership Ability					COLUMN II: Degree Attribute is Exhibited				
	Not Important				Essential	Low				High
Intellectual capacity.	1	2	3	4	5	1	2	3	4	5
Judgement.	1	2	3	4	5	1	2	3	4	5
Drive/determination.	1	2	3	4	5	1	2	3	4	5
Desire to lead	1	2	3	4	5	1	2	3	4	5
Enthusiasm	1	2	3	4	5	1	2	3	4	5
Self confidence.	1	2	3	4	5	1	2	3	4	5
Assertiveness.	1	2	3	4	5	1	2	3	4	5
Self Discipline.	1	2	3	4	5	1	2	3	4	5

	COLUMN I Attribute's Contribution to Leadership Ability Not Important ... Essential					COLUMN II Degree Attribute is Exhibited Low ... High				
Selflessness	1	2	3	4	5	1	2	3	4	5
Honesty/Integrity	1	2	3	4	5	1	2	3	4	5
Accountability	1	2	3	4	5	1	2	3	4	5
Strong value system	1	2	3	4	5	1	2	3	4	5
Reputation	1	2	3	4	5	1	2	3	4	5
Credibility	1	2	3	4	5	1	2	3	4	5
Strong work ethic	1	2	3	4	5	1	2	3	4	5
Personal charisma	1	2	3	4	5	1	2	3	4	5
Vision	1	2	3	4	5	1	2	3	4	5
Commitment to job	1	2	3	4	5	1	2	3	4	5
Commitment to quality	1	2	3	4	5	1	2	3	4	5
Willingness to take risks	1	2	3	4	5	1	2	3	4	5
Ability to communicate	1	2	3	4	5	1	2	3	4	5
Ability to listen	1	2	3	4	5	1	2	3	4	5
Sincere interest in staff	1	2	3	4	5	1	2	3	4	5
Accessibility to staff	1	2	3	4	5	1	2	3	4	5
Empathy (sensitivity to people)	1	2	3	4	5	1	2	3	4	5
Ability to coordinate disparate efforts	1	2	3	4	5	1	2	3	4	5
Ability to work with others	1	2	3	4	5	1	2	3	4	5
Ability to delegate authority	1	2	3	4	5	1	2	3	4	5
Ability to develop staff	1	2	3	4	5	1	2	3	4	5
Ability to mentor/coach	1	2	3	4	5	1	2	3	4	5
Ability to lead by example	1	2	3	4	5	1	2	3	4	5
Broadly based health care management experience	1	2	3	4	5	1	2	3	4	5
Experience working with physicians	1	2	3	4	5	1	2	3	4	5
Financial management experience	1	2	3	4	5	1	2	3	4	5
Contract management experience	1	2	3	4	5	1	2	3	4	5
Fleet/Fleet Marine Force experience	1	2	3	4	5	1	2	3	4	5
Knowledge of the organization (key players, culture, systems)	1	2	3	4	5	1	2	3	4	5
Knowledge of the organizational environment (customers, regulations, etc.)	1	2	3	4	5	1	2	3	4	5
Knowledge of management skills (planning, organizing, controlling)	1	2	3	4	5	1	2	3	4	5

IDENTIFICATION OF LEADERS

6. In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers? (Circle one)

Almost Always Sometimes Uncertain Seldom Rarely

7. Indicate the importance of identifying personnel with high leadership potential early in their careers. (Circle one)

Not Important Desirable Uncertain Very Desirable Essential

8. Please rate the below listed methods of identifying personnel with leadership potential. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Interviews and references	5	4	3	2	1
Providing challenging job assignments to individuals early in their careers	5	4	3	2	1
Assessment of the individual's capacity to develop desired leadership skills and behaviors	5	4	3	2	1
Providing individuals the opportunity for exposure to personnel in senior management positions.	5	4	3	2	1
Formal performance appraisal process.	5	4	3	2	1
Succession planning (incumbent executive determines what skills, traits and abilities successor will require, and selects individual who most closely meets the requirements)	5	4	3	2	1

9. What additional methods of identifying personnel with leadership potential do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
_____					
_____					
2. _____	5	4	3	2	1
_____					
_____					

LEADERSHIP DEVELOPMENT

10. Directions: Please rate the below listed methods of leadership development. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Guided job experience (rotating individuals through a variety of jobs on a planned basis).	5	4	3	2	1
Offering individuals opportunities to practice leadership skills.	5	4	3	2	1
Providing individuals challenging special projects and assignments.	5	4	3	2	1
Developing the individual's natural talents (vice trying to duplicate leaders).	5	4	3	2	1
Mentoring and coaching	5	4	3	2	1
Role modeling.	5	4	3	2	1
Providing individuals instruction on career management for long-term development.	5	4	3	2	1
Using performance appraisals as a feedback mechanism . . .	5	4	3	2	1
Providing feedback regarding developmental progress using methods other than the formal appraisal system	5	4	3	2	1
Rewarding actions that support desirable leadership development	5	4	3	2	1
Reinforcing, throughout career, ethical base as the source of decisions.	5	4	3	2	1
Academic degrees	5	4	3	2	1
Administrative residencies or internships.	5	4	3	2	1
Using formal organizational and external leadership/ management development programs.	5	4	3	2	1
Leadership/management classes or workshops	5	4	3	2	1
Association with professional organizations.	5	4	3	2	1
Civic and community involvement.	5	4	3	2	1

11. **What additional methods of leadership development do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.**

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1
3. _____	5	4	3	2	1

LEADERSHIP QUESTIONNAIRE

ORGANIZATIONAL INFORMATION

Type of Medical Treatment Facility (Circle one):

Hospital Medical Clinic Other (Specify) _____

Number of outpatient visits per year: _____ Number of beds: ____

PERSONAL INFORMATION

GENERAL

Years of Army service: ____ Years in current position: _____

Years in the health care field: _____ Medical Specialty: _____

Years of experience in health care administration: _____ Sex: ____ Age: ____

EDUCATION (Complete all that apply)

Bachelors Degree (Specify Major): _____

MBA ____ MHA ____ Other Graduate degree (Specify): _____

Doctorate (Specify): _____

Have you attended a Staff or War College? _____ (If yes specify): _____

List significant leadership/management development courses you have attended:

1. _____ 3. _____

2. _____ 4. _____

JOB ASSIGNMENTS

List your five most recent job assignments:

1. _____ 4. _____

2 _____ 5. _____

3. _____

IDENTIFYING AND DEVELOPING LEADERS

Please read the following statements and decide to what extent you agree or disagree with each. Indicate your decision by circling the appropriate letter based on the following scale.

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

1. **There is a need for more effective leadership in this nation's health care delivery system as a whole.** . . . . . A B C D E

2. **There is a sufficient number of personnel in the Army Medical Department with the qualifications to provide effective leadership..** A B C D E

3. **The Army Medical Department did a good job of preparing me to be a medical treatment facility Commander..** . . . . . A B C D E

4. **The Army Medical Department is doing a good job of developing its future leaders..** . . . . . A B C D E

5. **The Army Medical Department is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top executive positions.** . . . . . A B C D E

LEADERSHIP ATTRIBUTES

Directions: For each of the attributes listed below, please provide TWO ratings.

FIRST--In column I, please rate each attribute's contribution to a Commander's ability to provide effective leadership in a medical treatment facility setting. Circle a rating between 1 (Not Important) and 5 (Essential).

SECOND--In column II, indicate the degree that Army medical treatment facility Commanders exhibit each attribute. Circle a rating between 1 (lowest degree) and 5 (highest degree). Note: Consider the Army Medical Department Commander community as a whole.

	COLUMN I: Attribute's Contribution to Leadership Ability					COLUMN II: Degree Attribute is Exhibited				
	Not Important				Essential	Low				High
Intellectual capacity.	1	2	3	4	5	1	2	3	4	5
Judgement.	1	2	3	4	5	1	2	3	4	5
Drive/determination.	1	2	3	4	5	1	2	3	4	5
Desire to lead	1	2	3	4	5	1	2	3	4	5
Enthusiasm	1	2	3	4	5	1	2	3	4	5
Self confidence.	1	2	3	4	5	1	2	3	4	5
Assertiveness.	1	2	3	4	5	1	2	3	4	5
Self Discipline.	1	2	3	4	5	1	2	3	4	5

	COLUMN I Attribute's Contribution to Leadership Ability Not Important → Essential					COLUMN II Degree Attribute is Exhibited Low → High				
Selflessness	1	2	3	4	5	1	2	3	4	5
Honesty/Integrity	1	2	3	4	5	1	2	3	4	5
Accountability	1	2	3	4	5	1	2	3	4	5
Strong value system	1	2	3	4	5	1	2	3	4	5
Reputation	1	2	3	4	5	1	2	3	4	5
Credibility	1	2	3	4	5	1	2	3	4	5
Strong work ethic	1	2	3	4	5	1	2	3	4	5
Personal charisma	1	2	3	4	5	1	2	3	4	5
Vision	1	2	3	4	5	1	2	3	4	5
Commitment to job	1	2	3	4	5	1	2	3	4	5
Commitment to quality	1	2	3	4	5	1	2	3	4	5
Willingness to take risks	1	2	3	4	5	1	2	3	4	5
Ability to communicate	1	2	3	4	5	1	2	3	4	5
Ability to listen	1	2	3	4	5	1	2	3	4	5
Sincere interest in staff	1	2	3	4	5	1	2	3	4	5
Accessibility to staff	1	2	3	4	5	1	2	3	4	5
Empathy (sensitivity to people)	1	2	3	4	5	1	2	3	4	5
Ability to coordinate disparate efforts	1	2	3	4	5	1	2	3	4	5
Ability to work with others	1	2	3	4	5	1	2	3	4	5
Ability to delegate authority	1	2	3	4	5	1	2	3	4	5
Ability to develop staff	1	2	3	4	5	1	2	3	4	5
Ability to mentor/coach	1	2	3	4	5	1	2	3	4	5
Ability to lead by example	1	2	3	4	5	1	2	3	4	5
Broadly based health care management experience	1	2	3	4	5	1	2	3	4	5
Experience working with physicians	1	2	3	4	5	1	2	3	4	5
Financial management experience	1	2	3	4	5	1	2	3	4	5
Contract management experience	1	2	3	4	5	1	2	3	4	5
Field experience	1	2	3	4	5	1	2	3	4	5
Knowledge of the organization (key players, culture, systems)	1	2	3	4	5	1	2	3	4	5
Knowledge of the organizational environment (customers, regulations, etc.)	1	2	3	4	5	1	2	3	4	5
Knowledge of management skills (planning, organizing, controlling)	1	2	3	4	5	1	2	3	4	5

IDENTIFICATION OF LEADERS

6. In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers? (Circle one)

Almost Always Sometimes Uncertain Seldom Rarely

7. Indicate the importance of identifying personnel with high leadership potential early in their careers. (Circle one)

Not Important Desirable Uncertain Very Desirable Essential

8. Please rate the below listed methods of identifying personnel with leadership potential. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Interviews and references	5	4	3	2	1
Providing challenging job assignments to individuals early in their careers	5	4	3	2	1
Assessment of the individual's capacity to develop desired leadership skills and behaviors	5	4	3	2	1
Providing individuals the opportunity for exposure to personnel in senior management positions.	5	4	3	2	1
Formal performance appraisal process.	5	4	3	2	1
Succession planning (incumbent executive determines what skills, traits and abilities successor will require, and selects individual who most closely meets the requirements)	5	4	3	2	1

9. What additional methods of identifying personnel with leadership potential do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1

LEADERSHIP DEVELOPMENT

10. Directions: Please rate the below listed methods of leadership development. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Guided job experience (rotating individuals through a variety of jobs on a planned basis).	5	4	3	2	1
Offering individuals opportunities to practice leadership skills.	5	4	3	2	1
Providing individuals challenging special projects and assignments.	5	4	3	2	1
Developing the individual's natural talents (vice trying to duplicate leaders).	5	4	3	2	1
Mentoring and coaching	5	4	3	2	1
Role modeling.	5	4	3	2	1
Providing individuals instruction on career management for long-term development.	5	4	3	2	1
Using performance appraisals as a feedback mechanism . . .	5	4	3	2	1
Providing feedback regarding developmental progress using methods other than the formal appraisal system	5	4	3	2	1
Rewarding actions that support desirable leadership development	5	4	3	2	1
Reinforcing, throughout career, ethical base as the source of decisions.	5	4	3	2	1
Academic degrees	5	4	3	2	1
Administrative residencies or internships.	5	4	3	2	1
Using formal organizational and external leadership/ management development programs.	5	4	3	2	1
Leadership/management classes or workshops	5	4	3	2	1
Association with professional organizations.	5	4	3	2	1
Civic and community involvement.	5	4	3	2	1

11. **What additional methods of leadership development do you know of? How would you rate the effectiveness of each?** Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1
3. _____	5	4	3	2	1

LEADERSHIP QUESTIONNAIRE

ORGANIZATIONAL INFORMATION

Type of Medical Treatment Facility (Circle one):

Hospital Medical Clinic Other (Specify) _____

Number of outpatient visits per year: _____ Number of beds: _____

PERSONAL INFORMATION

GENERAL

Years of Air Force service: _____ Years in current position: _____

Years in the health care field: _____ Medical Specialty: _____

Years of experience in health care administration: _____ Sex: ____ Age: ____

EDUCATION (Complete all that apply)

Bachelors Degree (Specify Major): _____

MBA ____ MHA ____ Other Graduate degree (Specify): _____

Doctorate (Specify): _____

Have you attended a Staff or War College? _____ (If yes specify): _____

List significant leadership/management development courses you have attended:

1. _____ 3. _____

2. _____ 4. _____

JOB ASSIGNMENTS

List your five most recent job assignments:

1. _____ 4. _____

2. _____ 5. _____

3. _____

IDENTIFYING AND DEVELOPING LEADERS

Please read the following statements and decide to what extent you agree or disagree with each. Indicate your decision by circling the appropriate letter based on the following scale.

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

1. There is a need for more effective leadership in this nation's health care delivery system as a whole.	A	B	C	D	E
2. There is a sufficient number of personnel in the Air Force Medical Department with the qualifications to provide effective leadership..	A	B	C	D	E
3. The Air Force Medical Department did a good job of preparing me to be a medical treatment facility Commander..	A	B	C	D	E
4. The Air Force Medical Department is doing a good job of developing its future leaders..	A	B	C	D	E
5. The Air Force Medical Department is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top executive positions.	A	B	C	D	E

LEADERSHIP ATTRIBUTES

Directions: For each of the attributes listed below, please provide TWO ratings.

FIRST--In column I, please rate each attribute's contribution to a Commander's ability to provide effective leadership in an Air Force medical treatment facility (MTF) setting. Circle a rating between 1 (Not Important) and 5 (Essential).

SECOND--In column II, indicate the degree that Air Force MTF Commanders exhibit each attribute. Circle a rating between 1 (lowest degree) and 5 (highest degree). Note: Consider the Air Force Medical Department Commander community as a whole.

	COLUMN I: Attribute's Contribution to Leadership Ability					COLUMN II: Degree Attribute is Exhibited				
	Not Important				Essential	Low				High
Intellectual capacity.	1	2	3	4	5	1	2	3	4	5
Judgement.	1	2	3	4	5	1	2	3	4	5
Drive/determination.	1	2	3	4	5	1	2	3	4	5
Desire to lead	1	2	3	4	5	1	2	3	4	5
Enthusiasm	1	2	3	4	5	1	2	3	4	5
Self confidence.	1	2	3	4	5	1	2	3	4	5
Assertiveness.	1	2	3	4	5	1	2	3	4	5
Self Discipline.	1	2	3	4	5	1	2	3	4	5

	COLUMN I Attribute's Contribution to Leadership Ability Not Important				Essential	COLUMN II Degree Attribute is Exhibited Low				High
Selflessness	1	2	3	4	5	1	2	3	4	5
Honesty/Integrity	1	2	3	4	5	1	2	3	4	5
Accountability	1	2	3	4	5	1	2	3	4	5
Strong value system	1	2	3	4	5	1	2	3	4	5
Reputation	1	2	3	4	5	1	2	3	4	5
Credibility	1	2	3	4	5	1	2	3	4	5
Strong work ethic	1	2	3	4	5	1	2	3	4	5
Personal charisma	1	2	3	4	5	1	2	3	4	5
Vision	1	2	3	4	5	1	2	3	4	5
Commitment to job	1	2	3	4	5	1	2	3	4	5
Commitment to quality	1	2	3	4	5	1	2	3	4	5
Willingness to take risks	1	2	3	4	5	1	2	3	4	5
Ability to communicate	1	2	3	4	5	1	2	3	4	5
Ability to listen	1	2	3	4	5	1	2	3	4	5
Sincere interest in staff	1	2	3	4	5	1	2	3	4	5
Accessibility to staff	1	2	3	4	5	1	2	3	4	5
Empathy (sensitivity to people)	1	2	3	4	5	1	2	3	4	5
Ability to coordinate disparate efforts	1	2	3	4	5	1	2	3	4	5
Ability to work with others	1	2	3	4	5	1	2	3	4	5
Ability to delegate authority	1	2	3	4	5	1	2	3	4	5
Ability to develop staff	1	2	3	4	5	1	2	3	4	5
Ability to mentor/coach	1	2	3	4	5	1	2	3	4	5
Ability to lead by example	1	2	3	4	5	1	2	3	4	5
Broadly based health care management experience	1	2	3	4	5	1	2	3	4	5
Experience working with physicians	1	2	3	4	5	1	2	3	4	5
Financial management experience	1	2	3	4	5	1	2	3	4	5
Contract management experience	1	2	3	4	5	1	2	3	4	5
Squadron experience	1	2	3	4	5	1	2	3	4	5
Knowledge of the organization (key players, culture, systems)	1	2	3	4	5	1	2	3	4	5
Knowledge of the organizational environment (customers, regulations, etc.)	1	2	3	4	5	1	2	3	4	5
Knowledge of management skills (planning, organizing, controlling)	1	2	3	4	5	1	2	3	4	5

IDENTIFICATION OF LEADERS

6. In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers? (Circle one)

Almost Always Sometimes Uncertain Seldom Rarely

7. Indicate the importance of identifying personnel with high leadership potential early in their careers. (Circle one)

Not Important Desirable Uncertain Very Desirable Essential

8. Please rate the below listed methods of identifying personnel with leadership potential. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Interviews and references	5	4	3	2	1
Providing challenging job assignments to individuals early in their careers	5	4	3	2	1
Assessment of the individual's capacity to develop desired leadership skills and behaviors	5	4	3	2	1
Providing individuals the opportunity for exposure to personnel in senior management positions.	5	4	3	2	1
Formal performance appraisal process.	5	4	3	2	1
Succession planning (incumbent executive determines what skills, traits and abilities successor will require, and selects individual who most closely meets the requirements)	5	4	3	2	1

9. What additional methods of identifying personnel with leadership potential do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
_____					
_____					
2. _____	5	4	3	2	1
_____					
_____					

LEADERSHIP DEVELOPMENT

10. Directions: Please rate the below listed methods of leadership development. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Guided job experience (rotating individuals through a variety of jobs on a planned basis)	5	4	3	2	1
Offering individuals opportunities to practice leadership skills	5	4	3	2	1
Providing individuals challenging special projects and assignments	5	4	3	2	1
Developing the individual's natural talents (vice trying to duplicate leaders)	5	4	3	2	1
Mentoring and coaching	5	4	3	2	1
Role modeling	5	4	3	2	1
Providing individuals instruction on career management for long-term development	5	4	3	2	1
Using performance appraisals as a feedback mechanism	5	4	3	2	1
Providing feedback regarding developmental progress using methods other than the formal appraisal system	5	4	3	2	1
Rewarding actions that support desirable leadership development	5	4	3	2	1
Reinforcing, throughout career, ethical base as the source of decisions	5	4	3	2	1
Academic degrees	5	4	3	2	1
Administrative residencies or internships	5	4	3	2	1
Using formal organizational and external leadership/ management development programs	5	4	3	2	1
Leadership/management classes or workshops	5	4	3	2	1
Association with professional organizations	5	4	3	2	1
Civic and community involvement	5	4	3	2	1

11. **What additional methods of leadership development do you know of? How would you rate the effectiveness of each?** Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1
3. _____	5	4	3	2	1

LEADERSHIP QUESTIONNAIRE

ORGANIZATIONAL INFORMATION

Type of Hospital (Circle one):

General Medical-Surgical | Specialty (Specify) _____ | Other (Specify) _____

Number of outpatient visits per year: _____ Number of beds: _____

PERSONAL INFORMATION

GENERAL

Years with your current organization/institution: _____ Years in current position: _____

Years in the health care field: _____ Medical Specialty: _____

Years of experience in health care administration: _____ Sex: ____ Age: ____

EDUCATION (Complete all that apply)

Bachelors Degree (Specify Major): _____

MBA ____ MHA ____ Other Graduate degree (Specify): _____

Doctorate (Specify): _____

Does your organization sponsor an executive development course? _____
If yes, have you attended the course? _____ What was the course duration? _____

List other executive/leadership development courses you have attended which you feel are significant:

1. _____ Course _____ Duration

2. _____ Course _____ Duration

3. _____ Course _____ Duration

4. _____ Course _____ Duration

JOB ASSIGNMENTS

List your five most recent job assignments:

1. _____

2. _____

3. _____

4. _____

5. _____

IDENTIFYING AND DEVELOPING LEADERS

Please read the following statements and decide to what extent you agree or disagree with each. Indicate your decision by circling the appropriate letter based on the following scale.

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

1. **There is a need for more effective leadership in this nation's health care delivery system as a whole.** . . . . . A B C D E

2. **There is a sufficient number of personnel in my organization/ institution with the qualifications to provide effective leadership.** A B C D E

3. **My organization/institution did a good job of preparing me to be a hospital chief executive officer (CEO)** . . . . . A B C D E

4. **My organization/institution is doing a good job of developing its future leaders..** . . . . . A B C D E

5. **My organization/institution is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top exec tive positions.** . . . . . A B C D E

LEADERSHIP ATTRIBUTES

Directions: For each of the attributes listed below, please provide TWO ratings.

FIRST--In column I, please rate each attribute's contribution to a CEO's ability to provide effective leadership in a hospital setting. Circle a rating between 1 (Not Important) and 5 (Essential).

SECOND--In column II, indicate the degree that hospital CEOs exhibit each attribute. Circle a rating between 1 (lowest degree) and 5 (highest degree).
Note: Consider hospital CEO community as a whole.

	COLUMN I: Attribute's Contribution to Leadership Ability (Not Important → Essential)					COLUMN II: Degree Attribute is Exhibited (Low → High)				
Intellectual capacity.	1	2	3	4	5	1	2	3	4	5
Judgement.	1	2	3	4	5	1	2	3	4	5
Drive/determination.	1	2	3	4	5	1	2	3	4	5
Desire to lead	1	2	3	4	5	1	2	3	4	5
Enthusiasm	1	2	3	4	5	1	2	3	4	5
Self confidence.	1	2	3	4	5	1	2	3	4	5
Assertiveness.	1	2	3	4	5	1	2	3	4	5
Self Discipline.	1	2	3	4	5	1	2	3	4	5

	COLUMN I: Attribute's Contribution to Leadership Ability (Not Important → Essential)					COLUMN II: Degree Attribute is Exhibited (Low → High)				
Selflessness	1	2	3	4	5	1	2	3	4	5
Honesty/Integrity	1	2	3	4	5	1	2	3	4	5
Accountability	1	2	3	4	5	1	2	3	4	5
Strong value system	1	2	3	4	5	1	2	3	4	5
Reputation	1	2	3	4	5	1	2	3	4	5
Credibility	1	2	3	4	5	1	2	3	4	5
Strong work ethic	1	2	3	4	5	1	2	3	4	5
Personal charisma	1	2	3	4	5	1	2	3	4	5
Vision	1	2	3	4	5	1	2	3	4	5
Commitment to job	1	2	3	4	5	1	2	3	4	5
Commitment to quality	1	2	3	4	5	1	2	3	4	5
Willingness to take risks	1	2	3	4	5	1	2	3	4	5
Ability to communicate	1	2	3	4	5	1	2	3	4	5
Ability to listen	1	2	3	4	5	1	2	3	4	5
Sincere interest in staff	1	2	3	4	5	1	2	3	4	5
Accessibility to staff	1	2	3	4	5	1	2	3	4	5
Empathy (sensitivity to people)	1	2	3	4	5	1	2	3	4	5
Ability to coordinate disparate efforts	1	2	3	4	5	1	2	3	4	5
Ability to work with others	1	2	3	4	5	1	2	3	4	5
Ability to delegate authority	1	2	3	4	5	1	2	3	4	5
Ability to develop staff	1	2	3	4	5	1	2	3	4	5
Ability to mentor/coach	1	2	3	4	5	1	2	3	4	5
Ability to lead by example	1	2	3	4	5	1	2	3	4	5
Broadly based health care management experience	1	2	3	4	5	1	2	3	4	5
Experience working with physicians	1	2	3	4	5	1	2	3	4	5
Financial management experience	1	2	3	4	5	1	2	3	4	5
Contract management experience	1	2	3	4	5	1	2	3	4	5
Knowledge of the organization (key players, culture, systems)	1	2	3	4	5	1	2	3	4	5
Knowledge of the organizational environment (customers, regulations, etc.)	1	2	3	4	5	1	2	3	4	5
Knowledge of management skills (planning, organizing, controlling)	1	2	3	4	5	1	2	3	4	5

IDENTIFICATION OF LEADERS

6. In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers? (Circle one)

Almost Always Sometimes Uncertain Seldom Rarely

7. Indicate the importance of identifying personnel with high leadership potential early in their careers. (Circle one)

Not Important Desirable Uncertain Very Desirable Essential

8. Please rate the below listed methods of identifying personnel with leadership potential. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Interviews and references	5	4	3	2	1
Providing challenging job assignments to individuals early in their careers	5	4	3	2	1
Assessment of the individual's capacity to develop desired leadership skills and behaviors	5	4	3	2	1
Providing individuals the opportunity for exposure to personnel in senior management positions.	5	4	3	2	1
Formal performance appraisal process.	5	4	3	2	1
Succession planning (incumbent executive determines what skills, traits and abilities successor will require, and selects individual who most closely meets the requirements)	5	4	3	2	1

9. What additional methods of identifying personnel with leadership potential do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
_____					
_____					
2. _____	5	4	3	2	1
_____					
_____					

LEADERSHIP DEVELOPMENT

10. **Directions: Please rate the below listed methods of leadership development.** Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Guided job experience (rotating individuals through a variety of jobs on a planned basis)	5	4	3	2	1
Offering individuals opportunities to practice leadership skills	5		3	2	1
Providing individuals challenging special projects and assignments	5	4	3	2	1
Developing the individual's natural talents (vice trying to duplicate leaders)	5	4	3	2	1
Mentoring and coaching	5	4	3	2	1
Role modeling	5	4	3	2	1
Providing individuals instruction on career management for long-term development	5	4	3	2	1
Using performance appraisals as a feedback mechanism	5	4	3	2	1
Providing feedback regarding developmental progress using methods other than the formal appraisal system	5	4	3	2	1
Rewarding actions that support desirable leadership development	5	4	3	2	1
Reinforcing, throughout career, ethical base as the source of decisions	5	4	3	2	1
Academic degrees	5	4	3	2	1
Administrative residencies or internships	5	4	3	2	1
Using formal organizational and external leadership/ management development programs	5	4	3	2	1
Leadership/management classes or workshops	5	4	3	2	1
Association with professional organizations	5	4	3	2	1
Civic and community involvement	5	4	3	2	1

11. **What additional methods of leadership development do you know of? How would you rate the effectiveness of each?** Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1
3. _____	5	4	3	2	1

LEADERSHIP QUESTIONNAIRE

ORGANIZATIONAL INFORMATION

Type of Hospital (Circle one):

General Medical-Surgical	Neuro-Psychiatric	Domiciliary/ Extended Care	Other (Specify)_____

Number of outpatient visits per year: _____ Number of beds: _____

PERSONAL INFORMATION

GENERAL

Years with the Department of Veterans Affairs: _____ Years in current position: _____

Years in the health care field: _____ Medical Specialty: _____

Years of experience in health care administration: _____ Sex: ____ Age: ____

EDUCATION (Complete all that apply)

Bachelors Degree (Specify Major): _____

MBA ____ MHA ____ Other Graduate degree (Specify): _____

Doctorate (Specify): _____

Have you attended the DVA Executive Development Program? ____

List significant leadership/management development courses you have attended:

1. _____ 3. _____

2. _____ 4. _____

JOB ASSIGNMENTS

List your five most recent job assignments:

1. _____ 4. _____

2. _____ 5. _____

3. _____

IDENTIFYING AND DEVELOPING LEADERS

Please read the following statements and decide to what extent you agree or disagree with each. Indicate your decision by circling the appropriate letter based on the following scale. (DVA stands for Department of Veterans Affairs).

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

1. There is a need for more effective leadership in this nation's health care delivery system as a whole.	A	B	C	D	E
2. There is a sufficient number of personnel in the DVA health care system with the qualifications to provide effective leadership. . . .	A	B	C	D	E
3. The DVA health care system did a good job of preparing me to be a Medical Center Director.	A	B	C	D	E
4. The DVA health care system is doing a good job of developing its future leaders.	A	B	C	D	E
5. The DVA health care system is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top executive positions.	A	B	C	D	E

LEADERSHIP ATTRIBUTES

Directions: For each of the attributes listed below, please provide TWO ratings.

FIRST--In column I, please rate each attribute's contribution to a Medical Center Director's ability to provide effective leadership in a hospital setting. Circle a rating between 1 (Not Important) and 5 (Essential).

SECOND--In column II, indicate the degree that Medical Center Directors exhibit each attribute. Circle a rating between 1 (lowest degree) and 5 (highest degree).
Note: Consider the DVA Medical Center Director community as a whole.

	COLUMN I: Attribute's Contribution to Leadership Ability					COLUMN II: Degree Attribute is Exhibited				
	Not Important				Essential	Low				High
Intellectual capacity.	1	2	3	4	5	1	2	3	4	5
Judgement.	1	2	3	4	5	1	2	3	4	5
Drive/determination.	1	2	3	4	5	1	2	3	4	5
Desire to lead	1	2	3	4	5	1	2	3	4	5
Enthusiasm	1	2	3	4	5	1	2	3	4	5
Self confidence.	1	2	3	4	5	1	2	3	4	5
Assertiveness.	1	2	3	4	5	1	2	3	4	5
Self Discipline.	1	2	3	4	5	1	2	3	4	5

	COLUMN I Attribute's Contribution to Leadership Ability Not Important				Essential	COLUMN II Degree Attribute is Exhibited Low				High
Selflessness	1	2	3	4	5	1	2	3	4	5
Honesty/Integrity	1	2	3	4	5	1	2	3	4	5
Accountability	1	2	3	4	5	1	2	3	4	5
Strong value system	1	2	3	4	5	1	2	3	4	5
Reputation	1	2	3	4	5	1	2	3	4	5
Credibility	1	2	3	4	5	1	2	3	4	5
Strong work ethic	1	2	3	4	5	1	2	3	4	5
Personal charisma	1	2	3	4	5	1	2	3	4	5
Vision	1	2	3	4	5	1	2	3	4	5
Commitment to job	1	2	3	4	5	1	2	3	4	5
Commitment to quality	1	2	3	4	5	1	2	3	4	5
Willingness to take risks	1	2	3	4	5	1	2	3	4	5
Ability to communicate	1	2	3	4	5	1	2	3	4	5
Ability to listen	1	2	3	4	5	1	2	3	4	5
Sincere interest in staff	1	2	3	4	5	1	2	3	4	5
Accessibility to staff	1	2	3	4	5	1	2	3	4	5
Empathy (sensitivity to people)	1	2	3	4	5	1	2	3	4	5
Ability to coordinate disparate efforts	1	2	3	4	5	1	2	3	4	5
Ability to work with others	1	2	3	4	5	1	2	3	4	5
Ability to delegate authority	1	2	3	4	5	1	2	3	4	5
Ability to develop staff	1	2	3	4	5	1	2	3	4	5
Ability to mentor/coach	1	2	3	4	5	1	2	3	4	5
Ability to lead by example	1	2	3	4	5	1	2	3	4	5
Broadly based health care management experience	1	2	3	4	5	1	2	3	4	5
Experience working with physicians	1	2	3	4	5	1	2	3	4	5
Financial management experience	1	2	3	4	5	1	2	3	4	5
Contract management experience	1	2	3	4	5	1	2	3	4	5
Knowledge of the organization (key players, culture, systems)	1	2	3	4	5	1	2	3	4	5
Knowledge of the organizational environment (customers, regulations, etc.)	1	2	3	4	5	1	2	3	4	5
Knowledge of management skills (planning, organizing, controlling)	1	2	3	4	5	1	2	3	4	5

IDENTIFICATION OF LEADERS

6. In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers? (Circle one)

Almost Always Sometimes Uncertain Seldom Rarely

7. Indicate the importance of identifying personnel with high leadership potential early in their careers. (Circle one)

Not Important Desirable Uncertain Very Desirable Essential

8. Please rate the below listed methods of identifying personnel with leadership potential. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Interviews and references	5	4	3	2	1
Providing challenging job assignments to individuals early in their careers	5	4	3	2	1
Assessment of the individual's capacity to develop desired leadership skills and behaviors	5	4	3	2	1
Providing individuals the opportunity for exposure to personnel in senior management positions.	5	4	3	2	1
Formal performance appraisal process.	5	4	3	2	1
Succession planning (incumbent executive determines what skills, traits and abilities successor will require, and selects individual who most closely meets the requirements)	5	4	3	2	1

9. What additional methods of identifying personnel with leadership potential do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1

LEADERSHIP DEVELOPMENT

10. **Directions: Please rate the below listed methods of leadership development.** Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Guided job experience (rotating individuals through a variety of jobs on a planned basis)	5	4	3	2	1
Offering individuals opportunities to practice leadership skills	5	4	3	2	1
Providing individuals challenging special projects and assignments	5	4	3	2	1
Developing the individual's natural talents (vice trying to duplicate leaders)	5	4	3	2	1
Mentoring and coaching	5	4	3	2	1
Role modeling	5	4	3	2	1
Providing individuals instruction on career management for long-term development	5	4	3	2	1
Using performance appraisals as a feedback mechanism	5	4	3	2	1
Providing feedback regarding developmental progress using methods other than the formal appraisal system	5	4	3	2	1
Rewarding actions that support desirable leadership development	5	4	3	2	1
Reinforcing, throughout career, ethical base as the source of decisions	5	4	3	2	1
Academic degrees	5	4	3	2	1
Administrative residencies or internships	5	4	3	2	1
Using formal organizational and external leadership/ management development programs	5	4	3	2	1
Leadership/management classes or workshops	5	4	3	2	1
Association with professional organizations	5	4	3	2	1
Civic and community involvement	5	4	3	2	1

11. **What additional methods of leadership development do you know of? How would you rate the effectiveness of each?** Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1
3. _____	5	4	3	2	1

LEADERSHIP QUESTIONNAIRE

PERSONAL INFORMATION

Position: _____ Years in current position: _____ Rank: _____

Have you attended a Staff or War College? _____ (If yes specify): _____

Years of Naval or Marine Corps Service: _____

Years associated with, or acquainted with,
Naval Medical Department Commanding Officers: _____

IDENTIFYING AND DEVELOPING LEADERS

Please read the following statements and decide to what extent you agree or disagree with each. Indicate your decision by circling the appropriate letter based on the following scale.

A = Strongly agree B = Mildly agree C = Uncertain D = Mildly disagree E = Strongly disagree

1. There is a need for more effective leadership in this nation's health care delivery system as a whole.	A	B	C	D	E
2. There is a sufficient number of personnel in the Navy Medical Department with the qualifications to provide effective leadership..	A	B	C	D	E
3. The Navy Medical Department has done a good job of preparing its current medical treatment facility Commanding Officers..	A	B	C	D	E
4. The Navy Medical Department is doing a good job of developing its future leaders..	A	B	C	D	E
5. The Navy Medical Department is doing a good job of recruiting a sufficient number of people who have the potential of someday providing effective leadership in top executive positions.	A	B	C	D	E

LEADERSHIP ATTRIBUTES

Directions: For each of the attributes listed below, please provide TWO ratings.

FIRST--In column I, please rate each attribute's contribution to a Commanding Officer's ability to provide effective leadership in a Navy medical treatment facility setting. Circle a rating between 1 (Not Important) and 5 (Essential).

SECOND--In column II, indicate the degree that Navy medical treatment facility Commanding Officers exhibit each attribute. Circle a rating between 1 (lowest degree) and 5 (highest degree).

	COLUMN I: Attribute's Contribution to Leadership Ability					COLUMN II: Degree Attribute is Exhibited				
	Not Important				Essential	Low				High
Intellectual capacity.	1	2	3	4	5	1	2	3	4	5
Judgement.	1	2	3	4	5	1	2	3	4	5
Drive/determination.	1	2	3	4	5	1	2	3	4	5
Desire to lead	1	2	3	4	5	1	2	3	4	5
Enthusiasm	1	2	3	4	5	1	2	3	4	5
Self confidence.	1	2	3	4	5	1	2	3	4	5
Assertiveness.	1	2	3	4	5	1	2	3	4	5
Self Discipline.	1	2	3	4	5	1	2	3	4	5

	COLUMN I Attribute's Contribution to Leadership Ability Not Important … Essential					COLUMN II Degree Attribute is Exhibited Low … High				
Selflessness	1	2	3	4	5	1	2	3	4	5
Honesty/Integrity	1	2	3	4	5	1	2	3	4	5
Accountability	1	2	3	4	5	1	2	3	4	5
Strong value system	1	2	3	4	5	1	2	3	4	5
Reputation	1	2	3	4	5	1	2	3	4	5
Credibility	1	2	3	4	5	1	2	3	4	5
Strong work ethic	1	2	3	4	5	1	2	3	4	5
Personal charisma	1	2	3	4	5	1	2	3	4	5
Vision	1	2	3	4	5	1	2	3	4	5
Commitment to job	1	2	3	4	5	1	2	3	4	5
Commitment to quality	1	2	3	4	5	1	2	3	4	5
Willingness to take risks	1	2	3	4	5	1	2	3	4	5
Ability to communicate	1	2	3	4	5	1	2	3	4	5
Ability to listen	1	2	3	4	5	1	2	3	4	5
Sincere interest in staff	1	2	3	4	5	1	2	3	4	5
Accessibility to staff	1	2	3	4	5	1	2	3	4	5
Empathy (sensitivity to people)	1	2	3	4	5	1	2	3	4	5
Ability to coordinate disparate efforts	1	2	3	4	5	1	2	3	4	5
Ability to work with others	1	2	3	4	5	1	2	3	4	5
Ability to delegate authority	1	2	3	4	5	1	2	3	4	5
Ability to develop staff	1	2	3	4	5	1	2	3	4	5
Ability to mentor/coach	1	2	3	4	5	1	2	3	4	5
Ability to lead by example	1	2	3	4	5	1	2	3	4	5
Broadly based health care management experience	1	2	3	4	5	1	2	3	4	5
Experience working with physicians	1	2	3	4	5	1	2	3	4	5
Financial management experience	1	2	3	4	5	1	2	3	4	5
Contract management experience	1	2	3	4	5	1	2	3	4	5
Fleet/Fleet Marine Force experience	1	2	3	4	5	1	2	3	4	5
Knowledge of the organization (key players, culture, systems)	1	2	3	4	5	1	2	3	4	5
Knowledge of the organizational environment (customers, regulations, etc.)	1	2	3	4	5	1	2	3	4	5
Knowledge of management skills (planning, organizing, controlling)	1	2	3	4	5	1	2	3	4	5

IDENTIFICATION OF LEADERS

6. In your opinion, can personnel with the potential for providing effective leadership in important management positions be identified early in their careers? (Circle one)

Almost Always Sometimes Uncertain Seldom Rarely

7. Indicate the importance of identifying personnel with high leadership potential early in their careers. (Circle one)

Not Important Desirable Uncertain Very Desirable Essential

8. Please rate the below listed methods of identifying personnel with leadership potential. Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Interviews and references	5	4	3	2	1
Providing challenging job assignments to individuals early in their careers	5	4	3	2	1
Assessment of the individual's capacity to develop desired leadership skills and behaviors	5	4	3	2	1
Providing individuals the opportunity for exposure to personnel in senior management positions.	5	4	3	2	1
Formal performance appraisal process.	5	4	3	2	1
Succession planning (incumbent executive determines what skills, traits and abilities successor will require, and selects individual who most closely meets the requirements)	5	4	3	2	1

9. What additional methods of identifying personnel with leadership potential, do you know of? How would you rate the effectiveness of each? Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1

LEADERSHIP DEVELOPMENT

10. **Directions: Please rate the below listed methods of leadership development.** Circle a rating from 5 (highest score) to 1 (lowest score).

	Extremely effective				Not effective
Guided job experience (rotating individuals through a variety of jobs on a planned basis)	5	4	3	2	1
Offering individuals opportunities to practice leadership skills	5	4	3	2	1
Providing individuals challenging special projects and assignments	5	4	3	2	1
Developing the individual's natural talents (vice trying to duplicate leaders)	5	4	3	2	1
Mentoring and coaching	5	4	3	2	1
Role modeling	5	4	3	2	1
Providing individuals instruction on career management for long-term development	5	4	3	2	1
Using performance appraisals as a feedback mechanism	5	4	3	2	1
Providing feedback regarding developmental progress using methods other than the formal appraisal system	5	4	3	2	1
Rewarding actions that support desirable leadership development	5	4	3	2	1
Reinforcing, throughout career, ethical base as the source of decisions	5	4	3	2	1
Academic degrees	5	4	3	2	1
Administrative residencies or internships	5	4	3	2	1
Using formal organizational and external leadership/ management development programs	5	4	3	2	1
Leadership/management classes or workshops	5	4	3	2	1
Association with professional organizations	5	4	3	2	1
Civic and community involvement	5	4	3	2	1

11. **What additional methods of leadership development do you know of? How would you rate the effectiveness of each?** Use the same rating as in the previous question.

	Extremely effective				Not effective
1. _____	5	4	3	2	1
2. _____	5	4	3	2	1
3. _____	5	4	3	2	1

Appendix E

Cover Letters

February 20, 1990

Dear

One of the requirements of the Army-Baylor University Graduate Program in Health Care Administration, is the completion of a research project during the program's residency year. Lieutenant Dan Dominguez, MS , USN, a Baylor student who is under my preceptorship during his residency, is conducting his research on leaders and leadership in the Navy Medical Department. The intent of the year long project is to help expand the body of knowledge on leader identification and development and improve the process in the Navy Medical Department.

The enclosed questionnaire has been developed to obtain the desired information for this project and is being mailed to a LIMITED number of executives in the health care industry. You have been selected as a representative of medical treatment facility Commanding Officers in the Navy. Health care executives from the Army, Air Force, Department of Veterans Affairs and civilian non-government sectors are being surveyed as well.

As the number of executives surveyed from each group is relatively small, your input is essential and will make-

a significant contribution to the accuracy and success of this study. Please take the time to complete the attached questionnaire and return it in the enclosed self-addressed stamped envelope by 9 March 1990.

Your reply will be treated in strict confidence and will be available only to myself and Lieutenant Dominguez. Any publication will include only statistical totals for each sector and the group as a whole.

Your assistance is greatly appreciated and will enable us to learn more about leader identification and development and hopefully improve that process in the Navy Medical Department. If you have any questions regarding this project please call Lieutenant Dominguez at (804) 398-5110/7255.

Sincerely,

CHARLES R. LOAR
Rear Admiral
Medical Service Corps
United States Navy

Encl:
(1) Leadership Questionnaire

Department of Veterans Affairs

February 1, 1990

In Reply Refer to: 590/002

Director (00)
VA Medical Center

Dear Mr.

Please join in with me and take a few moments to complete this survey on leadership. The author of the survey is a Navy lieutenant who is a graduate student in Healthcare Administration. Lt. Dominguez is working in the development of leadership programs for the U.S. Navy as a part of his thesis. He recently completed a short rotation through the Hampton VA Medical Center, and asked if I would assist him in obtaining opinions from leaders within the VA system.

Please take a moment to assist Lt. Dominguez in his quest. Your opinions will be highly valued. Thank you for your time and consideration.

Thank you again for filling in this survey instrument.

Sincerely,

ALLAN S. GOSS
Medical Center Director

Encl.

Appendix F

Data Coding Key

Organizational and Personal Information

Variable: ID — Label: Survey ID
No value labels — Type: String Width: 4 — Missing: * None *

Variable: ORG1 — Label: Target Group
Value labels follow — Type: Number Width: 1 Dec: 0 — Missing: 9.00

1.00	Army	2.00	Air Force
3.00	Navy Medicine	4.00	Civilian nongovernment
5.00	Line (Navy & Marine)	6.00	Veterans Affairs
9.00	Missing		

Variable: TYPE1 — Label: Type of Facility
Value labels follow — Type: Number Width: 1 Dec: 0 — Missing: 9.00

1.00	Hospital	2.00	Medical Clinic
3.00	Medical Center	4.00	Dental Clinic
5.00	Specialty Hospital	6.00	Other
9.00	Missing		

Variable: OUTPT — Label: Outpatient visits (Thousands)
No value labels — Type: Number Width: 4 Dec: 0 — Missing: 99.00

Variable: BEDS — Label: Number of Beds
No value labels — Type: Number Width: 4 Dec: 0 — Missing: 99.00

Variable: YORG — Label: Years in Organization
No value labels — Type: Number Width: 2 Dec: 0 — Missing: 99.00

Variable: YPOS — Label: Years in Position
No value labels — Type: Number Width: 2 Dec: 0 — Missing: 99.00

Variable: YHC — Label: Years in Health Care Field
No value labels — Type: Number Width: 2 Dec: 0 — Missing: 99.00

Variable: SPEC1 — Label: Specialty
Value labels follow — Type: Number Width: 1 Dec: 0 — Missing: 9.00

1.00	Administrator	2.00	Physician
3.00	Nurse	4.00	Dentist
5.00	Other	6.00	Line (Navy & Marine)
9.00	Missing Value		

Variable: YHCA — Label: Years health care administration experie
No value labels — Type: Number Width: 2 Dec: 0 — Missing: 99.00

Variable: YAMED Label: Years associated with medical leaders
No value labels Type: Number Width: 2 Dec: 0 Missing: 9.00

Variable: SEX1 Label: Gender
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 Female 1.00 Male

Variable: AGE Label: Age
No value labels Type: Number Width: 2 Dec: 0 Missing: 99.00

Variable: BA1 Label: Bachelors Degree
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: MS1 Label: Masters Degree
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 MBA 2.00 MHA
3.00 Other 0.0 None
9.00 Missing Value

Variable: DOC1 Label: Doctorate
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 None 1.00 MD
2.00 Ph.D. 9.00 Missing Value

Variable: XDEV1 Label: Organization has Executive Development
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: ATND1 Label: Attended Executive Development Course
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes

Variable: XDEV1A Label: Industrial College of the Armed Forces
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1B Label: Armed Forces Staff College
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1C Label: Army War College
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1D Label: Air War College
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1E Label: Naval War College
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1F Label: National War College
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1G Label: US Army Command and General Staff
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1H Label: Air Command and Staff
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1J Label: Interagency Institute for Federal Health
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1K Label: DVA Executive Development Program
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes
9.00 Missing Value

Variable: XDEV1L Label: Leadership VA
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0 No 1.00 Yes

Variable: MGTC1 Label: Attended leadership courses
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0	No	1.00	Yes
9.00	Missing Value		

Variable: DEVPOS1 Label: Held developmental positions
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

0.0	No	1.00	Yes
9.00	Missing Value		

Identifying and Developing Leaders

Variable: NEED Label: More effective leadership required
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

5.00	Strongly disagree	4.00	Mildly disagree
3.00	Uncertain	2.00	Mildly agree
1.00	Strongly agree		

Variable: ENOUGH Label: Currently enough leaders in organization
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

5.00	Strongly agree	4.00	Mildly agree
3.00	Uncertain	2.00	Mildly disagree
1.00	Strongly disagree		

Variable: PREPARE Label: Current leaders adequately prepared
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

5.00	Strongly agree	4.00	Mildly agree
3.00	Uncertain	2.00	Mildly disagree
1.00	Strongly disagree		

Variable: FUTURE Label: Organization is developing future leader
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

5.00	Strongly agree	4.00	Mildly agree
3.00	Uncertain	2.00	Mildly disagree
1.00	Strongly disagree		

Variable: RECRUIT Label: Organization is recruiting future leader
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

5.00	Strongly agree	4.00	Mildly agree
3.00	Uncertain	2.00	Mildly disagree
1.00	Strongly disagree		

Leadership Attributes

Variable: INTEL1 Label: Intellectual capacity
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: INTEL2 Label: Intellectual capacity exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: JUDGE1 Label: Judgement
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: JUDGE2 Label: Judgement exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: DRIVE1 Label: Determination
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: DRIVE2 Label: Determination exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: DESIRE1 Label: Desire to lead
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: DESIRE2 Label: Desire to lead exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: * None *

1.00 Low 5.00 High

Variable: ENTHU1 Label: Enthusiasm
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: ENTHU2 Label: Enthusiasm exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: CONFI1 Label: Self confidence
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: CONFI2 Label: Self confidence exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: ASSERT1 Label: Assertiveness
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: ASSERT2 Label: Assertiveness exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: DISCI1 Label: Self discipline
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: DISCI2 Label: Self discipline exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: SELF1 Label: Selflessness
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00
1.00 Not important 5.00 Essential

Variable: SELF2 Label: Selflessness exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: HONEST1 Label: Integrity
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: HONEST2 Label: Integrity exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: ACCNT1 Label: Accountability
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: ACCNT2 Label: Accountability exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: VALUE1 Label: Strong value system
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: VALUE2 Label: Strong value system exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: REPU1 Label: Reputation
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: REPU2 Label: Good Reputation
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: CRED1 Label: Credibility
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: CRED2 Label: Credibility exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: WORK1 Label: Work ethic
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: WORK2 Label: Work ethic exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: CHARIS1 Label: Personal charisma
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: CHARIS2 Label: Personal charisma exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: VISION1 Label: Vision
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: VISION2 Label: Vision exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: COMMIT1 Label: Job committment
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: COMMIT2 Label: Job committment exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: QUAL1 Label: Committment to quality
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: QUAL2 Label: Committment to quality exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: RISK1 Label: Risk taking
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: RISK2 Label: Risk taking exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: COMMUN1 Label: Communication skills
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: COMMUN2 Label: Communication skills exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: LISTEN1 Label: Ability to listen
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: LISTEN2 Label: Ability to listen exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: INTRST1 Label: Interest in staff
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: INTRST2 Label: Interest in staff exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: ACCESS1 Label: Accessibility
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: ACCESS2 Label: Accessibility exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: EMPATH1 Label: Empathy
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: EMPATH2 Label: Empathy exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: COORD1 Label: Coordination skills
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: COORD2 Label: Coordination skills exhibited
Value labels follow Type: Numb r Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: WRKOTH1 Label: Ability to work with others
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: WRKOTH2 Label: Ability to work with others exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: DELEG1 Label: Delegation skills
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: DELEG2 Label: Delegation skills exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: DEVEL1 Label: Staff development
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: DEVEL2 Label: Staff development exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: MENTOR1 Label: Ability to mentor
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: MENTOR2 Label: Mentoring skills exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: LEAD1 Label: Leadership by example
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: LEAD2 Label: Leadership by example exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00
1.00 Low 5.00 High

Variable: BRDEXP1 Label: Broad based experience
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: BRDEXP2 Label: Broad based experience exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: DOCEXP1 Label: Experience with physicians
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: DOCEXP2 Label: Experience with physicians exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: FINEXP1 Label: Finance experience
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: FINEXP2 Label: Finance experience exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: CONTEXP1 Label: Contract experience
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: CONTEXP2 Label: Contract experience exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00
1.00 Low 5.00 High

Variable: FLEET1 Label: Operational experience
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: FLEET2 Label: Operational experience exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: KNOWORG1 Label: Knowledge of organization
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: KNOWORG2 Label: Knowledge of organization exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: KNOWENV1 Label: Knowledge of environment
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: KNOWENV2 Label: Knowledge of environment exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Variable: MANAGE1 Label: Management skills
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not important 5.00 Essential

Variable: MANAGE2 Label: Management skills exhibited
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Low 5.00 High

Leadership Attribute Composite Variables

Variable: AROLE	Label: Role Model					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: AWRKOTH	Label: Ability to Work with Others					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: ADEVL	Label: Ability to Develop Subordinates					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: ATASK	Label: Ability to Accomplish Goals Through Othe					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: ACARE	Label: Concern for Others					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: AEXP	Label: Experience					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: AKNOW	Label: Knowledge of the Organization and Enviro					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: AINTEL	Label: Intelligence					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: ADESI	Label: Desire to Lead					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: AREPU	Label: Reputation					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BROLE	Label: Role Models					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BWRKOTH	Label: Ability to Work with Others Exhibited					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BDEVL	Label: Ability to Develop Subordinates Exhibite					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BTASK	Label: Ability to Accomplish Goals Through Othe					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BCARE	Label: Concern for Others Exhibited					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BEXP	Label: Experience Exhibited					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: BKNOW	Label: Knowledge Exhibited					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00

Variable: BINTEL	Label: Intelligence Exhibited		
No value labels	Type: Number Width: 2 Dec: 0	Missing:	9.00
Variable: BDESI	Label: Desire to Lead Exhibited		
No value labels	Type: Number Width: 2 Dec: 0	Missing:	9.00
Variable: BREPU	Label: Reputation Exhibited		
No value labels	Type: Number Width: 2 Dec: 0	Missing:	9.00

Identification of Leaders

Variable: IDENTIFY Label: Leaders identified early
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Rarely	2.00	Seldom
3.00	Uncertain	4.00	Sometimes
5.00	Almost Always		

Variable: IMPORT Label: Importance of identifing leaders early
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not important	2.00	Desirable
3.00	Uncertain	4.00	Very Desirable
5.00	Essential		

Variable: INTER Label: Interviews and references
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not effective	5.00	Extremely effective

Variable: JOFASSI Label: Challenging jobs
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not effective	5.00	Extremely effective

Variable: INDCAP Label: Individual capabilities
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not effective	5.00	Extremely effective

Variable: OPPEXP Label: Exposure to senior management
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not effective	5.00	Extremely effective

Variable: PERAPP Label: Performance appraisals
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not effective	5.00	Extremely effective

Variable: SUCPLAN Label: Succession planning
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00	Not effective	5.00	Extremely effective

Leadership Identification Composite Variable

Variable: IDEXP Label: Exposure to Executives
No value labels Type: Number Width: 2 Dec: 0 Missing: 9.00

Leadership Development

Variable: JOBEXP Label: Guided job experience
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: PRACT Label: Practice of leadership skills
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: SPEPROJ Label: Challenging special projects
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: NATURAL Label: Develop natural talents
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: COACH Label: Mentoring and coaching
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: ROLE Label: Role modeling
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: INSTRUCT Label: Instruction on career development
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: APPRAISA Label: Performance appraisals
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: FEEDBACK Label: Feedback
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: REWARD Label: Rewarding developmental efforts
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: REENFORC Label: Emphasizing professional ethics
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: DEGREE Label: Academic degrees
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: RESIDE Label: Residencies or internships
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: LEADPROG Label: Formal leadership development programs
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: LEADCLAS Label: Leadership workshops
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: PROFESS Label: Affiliation with professional organizati
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Variable: CIVIC Label: Community involvement
Value labels follow Type: Number Width: 1 Dec: 0 Missing: 9.00

1.00 Not effective 5.00 Extremely effective

Leadership Development Method Composite Variables

Variable: DVOUT	Label: Traditional/Academic Development					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: DVTRAIN	Label: Training					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: DVROLE	Label: Coaching and Role Modeling					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: DVEXP	Label: Leadership Experience					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: DVFEED	Label: Evaluation of Performance					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00
Variable: DVGUIDE	Label: Guided Job Experience					
No value labels	Type: Number	Width:	2	Dec: 0	Missing:	9.00

Appendix G
Tests of Survey Instrument Reliability

FOR GROUP AS A WHOLE

RELIABILITY TEST OF GENERAL LEADERSHIP REQUIREMENT VARIABLES

---------- ANALYSIS OF VARIANCE ----------

NUMBER OF CASES: 60 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.600	60
2	3.450	60
3	1.317	60
4	3.783	60
5	3.467	60

BLOCK	MEAN	N
1	2.400	5
2	2.800	5
3	3.800	5
4	2.200	5
5	2.600	5
6	4.000	5
7	4.200	5
8	3.400	5
9	2.000	5
10	3.200	5
11	3.600	5
12	2.800	5
13	3.800	5
14	3.200	5
15	3.400	5
16	3.600	5
17	3.600	5
18	3.600	5
19	3.200	5
20	3.800	5
21	3.800	5
22	1.600	5
23	4.000	5
24	3.200	5
25	3.800	5
26	2.600	5
27	2.600	5
28	3.600	5
29	2.200	5
30	2.400	5

31	3.400	5
32	2.600	5
33	3.000	5
34	3.000	5
35	2.400	5
36	3.600	5
37	2.000	5
38	3.400	5
39	2.000	5
40	4.000	5
41	2.800	5
42	3.200	5
43	3.800	5
44	2.400	5
45	3.600	5
46	3.400	5
47	2.800	5
48	3.200	5
49	2.800	5
50	3.400	5
51	3.400	5
52	4.200	5
53	3.800	5
54	3.800	5
55	1.000	5
56	3.000	5
57	3.400	5
58	3.400	5
59	2.000	5
60	3.600	5
GRAND MEAN	3.123	300

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	249.087	4	62.272	63.205	.000E+00
BLOCK	140.837	59	2.387	2.423	1.395E-06
ERROR	232.513	236	.985		
TOTAL	622.437	299			

CRONBACH'S ALPHA = .59

RELIABILITY TEST OF REQUIRED LEADERSHIP ATTRIBUTE VARIABLES

---------- ANALYSIS OF VARIANCE ----------

NUMBER OF CASES: 60 NUMBER OF VARIABLES: 39

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	4.517	60
2	4.883	60
3	4.250	60
4	4.017	60
5	3.817	60
6	4.650	60
7	4.750	60
8	4.700	60
9	3.383	60
10	4.483	60
11	4.883	60
12	4.617	60
13	4.783	60
14	4.583	60
15	4.667	60
16	4.450	60
17	4.700	60
18	4.633	60
19	4.683	60
20	3.817	60
21	3.417	60
22	4.967	60
23	4.167	60
24	4.783	60
25	4.933	60
26	4.650	60
27	4.667	60
28	4.733	60
29	4.817	60
30	4.500	60
31	4.333	60
32	4.867	60
33	4.317	60
34	4.417	60
35	4.050	60
36	4.867	60
37	4.583	60
38	4.483	60
39	4.550	60

BLOCK	MEAN	N
1	4.487	39
2	4.256	39
3	4.744	39
4	4.436	39
5	4.103	39
6	4.692	39
7	4.154	39
8	4.385	39
9	4.231	39
10	4.538	39
11	4.821	39
12	4.436	39
13	4.564	39
14	4.333	39
15	4.231	39
16	4.641	39
17	4.179	39
18	4.821	39
19	4.282	39
20	4.718	39
21	4.667	39
22	4.718	39
23	4.487	39
24	4.410	39
25	4.385	39
26	4.487	39
27	4.769	39
28	4.205	39
29	4.513	39
30	4.846	39
31	4.641	39
32	4.692	39
33	4.359	39
34	4.872	39
35	4.667	39
36	4.462	39
37	4.308	39
38	4.385	39
39	4.769	39
40	4.769	39
41	4.410	39
42	4.231	39
43	4.410	39
44	4.718	39
45	4.179	39
46	4.744	39
47	4.436	39
48	4.821	39
49	4.487	39
50	4.256	39

51	4.154	39
52	4.615	39
53	4.154	39
54	4.872	39
55	4.564	39
56	4.333	39
57	4.538	39
58	4.333	39
59	4.154	39
60	4.923	39
GRAND MEAN	4.497	2340

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	338.606	38	8.911	31.713	.000E+00
BLOCK	120.409	59	2.041	7.263	1.100E-12
ERROR	629.958	2242	.281		
TOTAL	1088.973	2339			

CRONBACH'S ALPHA = .86

RELIABILITY TEST FOR LEADERSHIP ATTRIBUTES EXHIBITED

---------- ANALYSIS OF VARIANCE ----------

NUMBER OF CASES: 60 NUMBER OF VARIABLES: 39

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.617	60
2	3.867	60
3	3.750	60
4	3.367	60
5	3.483	60
6	3.967	60
7	3.733	60
8	4.017	60
9	2.767	60
10	3.700	60
11	3.817	60
12	3.567	60
13	3.783	60
14	3.383	60
15	3.667	60
16	3.967	60
17	3.850	60
18	3.600	60
19	3.817	60
20	2.967	60
21	3.050	60
22	4.100	60
23	3.783	60
24	3.633	60
25	3.900	60
26	3.933	60
27	3.950	60
28	3.733	60
29	3.500	60
30	3.500	60
31	3.400	60
32	3.933	60
33	3.850	60
34	2.867	60
35	3.333	60
36	3.900	60
37	3.150	60
38	3.867	60
39	3.850	60

BLOCK	MEAN	N
1	3.692	39
2	3.000	39
3	3.923	39
4	3.385	39
5	2.641	39
6	3.872	39
7	3.744	39
8	3.692	39
9	2.923	39
10	3.154	39
11	4.205	39
12	3.821	39
13	3.333	39
14	4.000	39
15	3.333	39
16	3.487	39
17	3.410	39
18	3.846	39
19	3.000	39
20	3.462	39
21	3.821	39
22	3.667	39
23	3.846	39
24	3.282	39
25	3.308	39
26	3.590	39
27	4.000	39
28	2.923	39
29	2.872	39
30	4.462	39
31	4.692	39
32	4.256	39
33	3.385	39
34	4.897	39
35	4.051	39
36	4.795	39
37	2.795	39
38	3.821	39
39	3.436	39
40	3.846	39
41	3.410	39
42	4.051	39
43	4.487	39
44	3.590	39
45	4.154	39
46	3.718	39
47	3.795	39
48	4.077	39
49	3.436	39
50	3.641	39

51	3.026	39
52	4.282	39
53	3.846	39
54	4.256	39
55	2.923	39
56	2.974	39
57	3.205	39
58	3.590	39
59	2.872	39
60	3.333	39
GRAND MEAN	3.639	2340

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	246.511	38	6.487	16.551	.000E+00
BLOCK	616.579	59	10.450	26.662	8.000E-13
ERROR	878.771	2242	.392		
TOTAL	1741.861	2339			

CRONBACH'S ALPHA = .96

RELIABILITY TEST OF LEADERSHIP IDENTIFICATION VARIABLES

---------- ANALYSIS OF VARIANCE ----------

NUMBER OF CASES: 60 NUMBER OF VARIABLES: 8

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	4.383	60
2	3.767	60
3	4.033	60
4	3.117	60
5	4.667	60
6	4.150	60
7	3.483	60
8	3.567	60

BLOCK	MEAN	N
1	4.125	8
2	3.125	8
3	3.750	8
4	3.625	8
5	4.125	8
6	3.375	8
7	3.625	8
8	3.250	
9	4.000	8
10	4.000	8
11	4.625	8
12	3.250	8
13	3.875	
14	3.750	
15	4.625	
16	4.000	
17	3.625	8
18	4.125	8
19	3.625	8
20	4.000	8
21	3.750	8
22	3.750	8
23	3.625	8
24	4.000	8
25	3.125	8
26	3.375	8
27	4.250	8
28	2.625	8
29	4.500	8
30	4.625	8
31	4.250	8
32	4.500	8

33	4.250	8
34	4.750	8
35	4.125	8
36	3.875	8
37	3.750	8
38	3.625	8
39	3.250	8
40	3.750	8
41	4.000	8
42	3.375	8
43	3.750	8
44	3.500	8
45	3.375	8
46	4.125	8
47	4.375	8
48	4.625	8
49	4.000	8
50	3.625	8
51	4.125	8
52	4.250	8
53	3.875	8
54	3.875	8
55	4.250	8
56	3.625	8
57	4.125	8
58	4.125	8
59	3.750	8
60	4.750	8
GRAND MEAN	3.896	480

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	109.058	7	15.580	26.162	1.000E-13
BLOCK	93.792	59	1.590	2.670	7.799E-09
ERROR	245.942	413	.596		
TOTAL	448.792	479			

CRONBACH'S ALPHA = .63

RELIABILITY TEST FOR LEADERSHIP DEVLELOPMENT VARIABLES

---------- ANALYSIS OF VARIANCE ----------

NUMBER OF CASES: 60 NUMBER OF VARIABLES: 17

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.400	60
2	3.483	60
3	4.350	60
4	3.250	60
5	4.250	60
6	3.667	60
7	4.083	60
8	3.633	60
9	3.750	60
10	4.433	60
11	4.467	60
12	3.350	60
13	4.500	60
14	3.483	60
15	4.133	60
16	4.350	60
17	4.483	60

BLOCK	MEAN	N
1	3.941	17
2	3.588	17
3	3.647	17
4	3.529	17
5	3.706	17
6	4.000	17
7	3.059	17
8	3.647	17
9	3.706	17
10	4.235	17
11	4.706	17
12	3.176	17
13	4.176	17
14	3.529	17
15	3.588	17
16	4.235	17
17	3.353	17
18	4.471	17
19	4.000	17
20	4.118	17
21	3.471	17
22	4.059	17
23	3.941	17

24	4.000	17
25	3.353	17
26	4.235	17
27	4.706	17
28	3.235	17
29	4.353	17
30	3.824	17
31	4.294	17
32	4.588	17
33	4.118	17
34	4.471	17
35	4.412	17
36	3.647	17
37	3.235	17
38	3.824	17
39	4.353	17
40	3.941	17
41	4.000	17
42	3.706	17
43	3.941	17
44	3.941	17
45	3.706	17
46	3.000	17
47	4.176	17
48	4.765	17
49	3.882	17
50	3.882	17
51	3.647	17
52	4.529	17
53	3.882	17
54	4.000	17
55	4.647	17
56	4.000	17
57	4.176	17
58	3.824	17
59	3.941	17
60	4.588	17
GRAND MEAN	3.945	1020

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	201.425	16	12.589	26.514	.000E+00
BLOCK	181.278	59	3.073	6.471	1.660E-12
ERROR	448.222	944	.475		
TOTAL	830.925	1019			

CRONBACH'S ALPHA = .85

SELECTED RELIABILITY TEST BY TARGET GROUP
GENERAL LEADERSHIP VARIABLES

ARMY

NUMBER OF CASES: 60 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.818	11
2	3.091	11
3	1.545	11
4	3.091	11
5	4.000	11

BLOCK	MEAN	N
1	2.400	5
2	2.800	5
3	3.800	5
4	2.200	5
5	2.600	5
6	4.000	5
7	4.200	5
8	3.400	5
9	2.000	5
10	3.200	5
11	3.600	5
GRAND MEAN	3.109	55

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	41.164	4	10.291	8.293	5.717E-05
BLOCK	28.545	10	2.855	2.300	.0304
ERROR	49.636	40	1.241		
TOTAL	119.345	54			

CRONBACH'S ALPHA = .57

AIR FORCE

NUMBER OF CASES: 49 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	4.250	8
2	4.125	8
3	1.125	8
4	3.250	8
5	4.250	8

BLOCK	MEAN	N
1	2.800	5
2	3.800	5
3	3.200	5
4	3.400	5
5	3.600	5
6	3.600	5
7	3.600	5
8	3.200	5
GRAND MEAN	3.400	40

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	57.350	4	14.338	31.735	4.940E-10
BLOCK	3.600	7	.514	1.138	.3683
ERROR	12.650	28	.452		
TOTAL	73.600	39			

CRONBACH'S ALPHA = .12

NAVY MEDICINE

NUMBER OF CASES: 41 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.091	11
2	3.364	11
3	1.182	11
4	4.273	11
5	3.364	11

BLOCK	MEAN	N
1	3.800	5
2	3.800	5
3	1.600	5
4	4.000	5
5	3.200	5
6	3.800	5
7	2.600	5
8	2.600	5
9	3.600	5
10	2.200	5
11	2.400	5
GRAND MEAN	3.055	55

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	57.018	4	14.255	18.404	1.195E-08
BLOCK	32.836	10	3.284	4.239	4.744E-04
ERROR	30.982	40	.775		
TOTAL	120.836	54			

CRONBACH'S ALPHA = .76

CIVILIAN

NUMBER OF CASES: 30 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.400	10
2	3.200	10
3	1.600	10
4	3.300	10
5	3.200	10

BLOCK	MEAN	N
1	3.400	5
2	2.600	5
3	3.000	5
4	3.000	5
5	2.400	5
6	3.600	5
7	2.000	5
8	3.400	5
9	2.000	5
10	4.000	5
GRAND MEAN	2.940	50

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	22.720	4	5.680	5.485	1.489E-03
BLOCK	20.820	9	2.313	2.234	.0424
ERROR	37.280	36	1.036		
TOTAL	80.820	49			

CRONBACH'S ALPHA = .55

DEPARTMENT OF VETERANS AFFAIRS

NUMBER OF CASES: 11 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.909	11
2	3.364	11
3	1.364	11
4	4.364	11
5	2.909	11

BLOCK	MEAN	N
1	3.400	5
2	3.400	5
3	4.200	5
4	3.800	5
5	3.800	5
6	1.000	5
7	3.000	5
8	3.400	5
9	3.400	5
10	2.000	5
11	3.600	5
GRAND MEAN	3.182	55

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	58.727	4	14.682	22.875	6.859E-10
BLOCK	41.782	10	4.178	6.510	7.171E-06
ERROR	25.673	40	.642		
TOTAL	126.182	54			

CRONBACH'S ALPHA = .85

LINE COMMUNITY

NUMBER OF CASES: 20 NUMBER OF VARIABLES: 5

RANDOMIZED BLOCKS ANOVA

TREATMENT	MEAN	N
1	3.222	9
2	3.778	9
3	1.000	9
4	4.333	9
5	3.222	9

BLOCK	MEAN	N
1	2.800	5
2	3.200	5
3	3.800	5
4	2.400	5
5	3.600	5
6	3.400	5
7	2.800	5
8	3.200	5
9	2.800	5
GRAND MEAN	3.111	45

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
TREATMENT	57.778	4	14.444	15.094	4.925E-07
BLOCK	8.044	8	1.006	1.051	.4205
ERROR	30.622	32	.957		
TOTAL	96.444	44			

CRONBACH'S ALPHA = .05

Appendix H
Factor Analysis Results

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean

Correlation Matrix:

	WORK1	LISTEN1	INTRST1	ACCESS1	LEAD1	MANAGE1	COMMUN1
WORK1	1.00000						
LISTEN1	.34948	1.00000					
INTRST1	.15874	.34571	1.00000				
ACCESS1	.47764	.26828	.48262	1.00000			
LEAD1	.33531	.29879	.37916	.46311	1.00000		
MANAGE1	.47318	.34444	.29577	.27545	.40185	1.00000	
COMMUN1	.08333	.11457	.37385	.10495	.32081	.22059	1.00000
WRKOTH1	.32151	.29593	.32313	.33227	.56262	.37682	.43619
DEVEL1	.21840	.10418	.35258	.23658	.27884	.17698	.40873
MENTOR1	.21768	.04605	.25701	.43687	.26189	.23747	.22749

	WRKOTH1	DEVEL1	MENTOR1
WRKOTH1	1.00000		
DEVEL1	.47065	1.00000	
MENTOR1	.45338	.69967	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .69463

Bartlett Test of Sphericity = 200.84293, Significance = .00000

There are 44 (48.9%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	WORK1	LISTEN1	INTRST1	ACCESS1	LEAD1
WORK1	.55953				
LISTEN1	-.11877	.73466			
INTRST1	.15065	-.14929	.54558		
ACCESS1	-.21447	-.00249	-.21970	.43395	
LEAD1	.01320	-.02032	-.01773	-.14005	.55045
MANAGE1	-.22763	-.08778	-.10385	.09576	-.10564
COMMUN1	.03002	.05905	-.14245	.06095	-.05227
WRKOTH1	-.03560	-.09145	.02166	.01848	-.19515
DEVEL1	-.10139	.00017	-.12014	.11922	-.02293
MENTOR1	.08255	.06665	.07835	-.17682	.05989

	MANAGE1	COMMUN1	WRKOTH1	DEVEL1	MENTOR1
MANAGE1	.62986				
COMMUN1	-.04471	.67204			
WRKOTH1	-.04058	-.14135	.49803		
DEVEL1	.09039	-.11329	-.04293	.38376	
MENTOR1	-.09450	.05215	-.08517	-.24967	.37299

Anti-Image Correlation Matrix:

	WORK1	LISTEN1	INTRST1	ACCESS1	LEAD1	MANAGE1	COMMUN1
WORK1	.63240						
LISTEN1	-.18525	.80512					
INTRST1	.27267	-.23580	.66636				
ACCESS1	-.43524	-.00440	-.45153	.59778			
LEAD1	.02378	-.03196	-.03234	-.28655	.81967		
MANAGE1	-.38343	-.12904	-.17716	.18317	-.17941	.73409	
COMMUN1	.04895	.08403	-.23525	.11287	-.08593	-.06871	.77699
WRKOTH1	-.06743	-.15119	.04154	.03974	-.37271	-.07245	-.24432
DEVEL1	-.21879	.00032	-.26257	.29213	-.04990	.18384	-.22308
MENTOR1	.18071	.12733	.17368	-.43949	.13218	-.19496	.10416

	WRKOTH1	DEVEL1	MENTOR1
WRKOTH1	.83950		
DEVEL1	-.09820	.62572	
MENTOR1	-.19760	-.65992	.59169

Measures of sampling adequacy (MSA) are printed on the diagonal.
Extraction 1 for Analysis 1, Principal-Components Analysis (PC)
PC Extracted 3 factors.

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.
Varimax converged in 11 iterations.
Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
WORK1	1.00000	*	1	3.91069	39.1	39.1
LISTEN1	1.00000	*	2	1.43113	14.3	53.4
INTRST1	1.00000	*	3	1.03525	10.4	63.8
ACCESS1	1.00000	*	4	.87075	8.7	72.5
LEAD1	1.00000	*	5	.71346	7.1	79.6
MANAGE1	1.00000	*	6	.62314	6.2	85.8
COMMUN1	1.00000	*	7	.53723	5.4	91.2
WRKOTH1	1.00000	*	8	.36878	3.7	94.9
DEVEL1	1.00000	*	9	.33947	3.4	98.3
MENTOR1	1.00000	*	10	.17011	1.7	100.0

PC Extracted 3 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
WRKOTH1	.75268	-.14537	.13865
LEAD1	.70759	.15161	.16384
ACCESS1	.66464	.21420	-.37205
DEVEL1	.64150	-.58380	-.15607
INTRST1	.63513	.00669	.28841
MENTOR1	.63096	-.49362	-.46030
MANAGE1	.60223	.37041	.04774
WORK1	.57392	.45879	-.36442
LISTEN1	.47929	.51847	.23648
COMMUN1	.51666	-.37428	.58340

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
WORK1	.67266	*	1	3.91069	39.1	39.1
LISTEN1	.55446	*	2	1.43113	14.3	53.4
INTRST1	.48662	*	3	1.03525	10.4	63.8
ACCESS1	.62604	*				
LEAD1	.55051	*				
MANAGE1	.50216	*				
COMMUN1	.74737	*				
WRKOTH1	.60688	*				
DEVEL1	.77671	*				
MENTOR1	.85366	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.
Varimax converged in 11 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
WORK1	.79016	-.07976	.20483
ACCESS1	.67460	.02803	.41252
MANAGE1	.64873	.28239	.03950
LISTEN1	.63141	.32331	-.22637
LEAD1	.53247	.48897	.16702
COMMUN1	-.06929	.84523	.16780
INTRST1	.35162	.58298	.15205
WRKOTH1	.35345	.57063	.39538
MENTOR1	.16249	.12091	.90146
DEVEL1	.03335	.38877	.79022

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.65191	.56410	.50676
FACTOR 2	.72155	-.25595	-.64331
FACTOR 3	-.23319	.78504	-.57388

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean

Correlation Matrix:

	ASSERT1	SELF1	REPU1	RISK1	COORD1	DELEG1	QUAL1
ASSERT1	1.00000						
SELF1	.41917	1.00000					
REPU1	.40212	.37599	1.00000				
RISK1	.09513	-.02584	.11542	1.00000			
COORD1	.17975	.10779	.18272	.54240	1.00000		
DELEG1	.14302	.01891	.11839	.32123	.46308	1.00000	
QUAL1	.01008	.07988	.10701	.17796	-.16382	-.17188	1.00000
EMPATH1	.22111	.21034	.15503	.24773	.15141	.15984	.42468

	EMPATH1
EMPATH1	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .61171

Bartlett Test of Sphericity = 87.93235, Significance = .00000

There are 24 (42.9%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	ASSERT1	SELF1	REPU1	RISK1	COORD1
ASSERT1	.72573				
SELF1	-.21741	.74058			
REPU1	-.20306	-.18128	.76196		
RISK1	-.01400	.09649	-.00614	.60573	
COORD1	-.01580	-.06299	-.05665	-.29407	.54777
DELEG1	-.03443	.05040	-.03664	-.07992	-.17617
QUAL1	.06201	-.02226	-.08314	-.18088	.16862
EMPATH1	-.09866	-.08902	.02625	-.03970	-.04623

	DELEG1	QUAL1	EMPATH1
DELEG1	.73445		
QUAL1	.14270	.66974	
EMPATH1	-.11668	-.29928	.70582

Anti-Image Correlation Matrix:

	ASSERT1	SELF1	REPU1	RISK1	COORD1	DELEG1	QUAL1
ASSERT1	.69931						
SELF1	-.29655	.65816					
REPU1	-.27307	-.24133	.71674				
RISK1	-.02111	.14406	-.00903	.57431			
COORD1	-.02505	-.09891	-.08768	-.51051	.59158		
DELEG1	-.04716	.06834	-.04898	-.11982	-.27774	.70755	
QUAL1	.08894	-.03160	-.11639	-.28399	.27840	.20347	.41033
EMPATH1	-.13785	-.12313	.03579	-.06071	-.07436	-.16206	-.43530

	EMPATH1
EMPATH1	.61004

Measures of sampling adequacy (MSA) are printed on the diagonal.

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

PC Extracted 3 factors.

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 5 iterations.

Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
ASSERT1	1.00000	*	1	2.35075	29.4	29.4
SELF1	1.00000	*	2	1.61302	20.2	49.5
REPU1	1.00000	*	3	1.34643	16.8	66.4
RISK1	1.00000	*	4	.71897	9.0	75.4
COORD1	1.00000	*	5	.61819	7.7	83.1
DELEG1	1.00000	*	6	.56938	7.1	90.2
QUAL1	1.00000	*	7	.45309	5.7	95.9
EMPATH1	1.00000	*	8	.33018	4.1	100.0

PC Extracted 3 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
COORD1	.65958	-.55480	-.04672
ASSERT1	.60288	.33255	-.38643
RISK1	.59809	-.41490	.41461
REPU1	.58082	.34437	-.30403
EMPATH1	.54606	.29058	.51919
DELEG1	.53140	-.54503	-.07994
SELF1	.49323	.50838	-.36571
QUAL1	.18255	.51376	.72172

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
ASSERT1	.62338	*	1	2.35075	29.4	29.4
SELF1	.63547	*	2	1.61302	20.2	49.5
REPU1	.54838	*	3	1.34643	16.8	66.4
RISK1	.70176	*				
COORD1	.74503	*				
DELEG1	.58583	*				
QUAL1	.81816	*				
EMPATH1	.65218	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 5 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
COORD1	.84816	.15130	-.05263
DELEG1	.75030	.09208	-.12004
RISK1	.74809	-.06366	.37159
SELF1	-.06459	.79013	.08358
ASSERT1	.13567	.77730	.02791
REPU1	.11974	.72469	.09420
QUAL1	-.17921	.00203	.88659
EMPATH1	.21195	.22596	.74579

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.68406	.64391	.34270
FACTOR 2	-.72339	.53857	.43203
FACTOR 3	.09362	-.54344	.83421

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean

Correlation Matrix:

	KNOWORG1	KNOWENV1	FINEXP1	CONTEXP1	FLEET1	INTEL1	CONFI1
KNOWORG1	1.00000						
KNOWENV1	.52009	1.00000					
FINEXP1	.10069	.25042	1.00000				
CONTEXP1	.23992	.28865	.54522	1.00000			
FLEET1	-.00096	.08674	.27202	.27820	1.00000		
INTEL1	.10922	.02637	.09919	-.09733	.06947	1.00000	
CONFI1	-.02572	.02087	.09156	.05511	.10244	.42899	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .54643

Bartlett Test of Sphericity = 40.83486, Significance = .00588

There are 20 (47.6%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	KNOWORG1	KNOWENV1	FINEXP1	CONTEXP1	FLEET1
KNOWORG1	.68291				
KNOWENV1	-.33750	.68177			
FINEXP1	.08188	-.10245	.64926		
CONTEXP1	-.12635	-.04244	-.31431	.60662	
FLEET1	.06144	-.02211	-.09410	-.13054	.88853
INTEL1	-.13405	.04002	-.12079	.16241	-.04873
CONFI1	.08388	-.02829	.01848	-.07321	-.03680

	INTEL1	CONFI1
INTEL1	.74845	
CONFI1	-.33905	.79335

Anti-Image Correlation Matrix:

	KNOWORG1	KNOWENV1	FINEXP1	CONTEXP1	FLEET1	INTEL1	CONFI1
KNOWORG1	.49866						
KNOWENV1	-.49462	.60453					
FINEXP1	.12297	-.15398	.57933				
CONTEXP1	-.19631	-.06599	-.50084	.57234			
FLEET1	.07888	-.02841	-.12389	-.17780	.74549		
INTEL1	-.18750	.05603	-.17328	.24102	-.05976	.40559	
CONFI1	.11396	-.03847	.02575	-.10553	-.04383	-.44000	.48281

Measures of sampling adequacy (MSA) are printed on the diagonal.

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

PC Extracted 3 factors.

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 5 iterations.

Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
KNOWORG1	1.00000	*	1	2.10501	30.1	30.1
KNOWENV1	1.00000	*	2	1.43958	20.6	50.6
FINEXP1	1.00000	*	3	1.24663	17.8	68.4
CONTEXP1	1.00000	*	4	.75936	10.8	79.3
FLEET1	1.00000	*	5	.60364	8.6	87.9
INTEL1	1.00000	*	6	.50100	7.2	95.1
CONFI1	1.00000	*	7	.34478	4.9	100.0

PC Extracted 3 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
CONTEXP1	.75471	-.18379	-.32406
FINEXP1	.71659	.04289	-.37907
KNOWENV1	.66348	-.23489	.47123
CONFI1	.20691	.80156	.07458
INTEL1	.17693	.79201	.30201
KNOWORG1	.55372	-.21890	.65165
FLEET1	.44832	.17632	-.50442

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
KNOWORG1	.77918	*	1	2.10501	30.1	30.1
KNOWENV1	.71744	*	2	1.43958	20.6	50.6
FINEXP1	.65903	*	3	1.24663	17.8	68.4
CONTEXP1	.70839	*				
FLEET1	.48651	*				
INTEL1	.74979	*				
CONFI1	.69088	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 5 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FINEXP1	.79239	.16030	.07386
CONTEXP1	.78026	.29064	-.12293
FLEET1	.67238	-.13714	.12496
KNOWORG1	-.00518	.88166	.04269
KNOWENV1	.19482	.82430	.00313
INTEL1	-.04112	.09583	.85960
CONFI1	.12914	-.05286	.81939

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.76197	.62416	.17269
FACTOR 2	.02463	-.29440	.95537
FACTOR 3	-.64714	.72371	.23970

- - - - F A C T O R A N A L Y S I S - - - -

Analysis Number 1 Replacement of missing values with the mean

Correlation Matrix:

	ACCNT1	CRED1	CHARIS1	BRDEXP1	DRIVE1	DESIRE1	ENTHU1
ACCNT1	1.00000						
CRED1	.35310	1.00000					
CHARIS1	-.02194	-.33161	1.00000				
BRDEXP1	-.13188	-.06185	.30783	1.00000			
DRIVE1	-.00987	.18754	.17482	.31198	1.00000		
DESIRE1	.26518	.05161	.18487	.28742	.33237	1.00000	
ENTHU1	.31946	.10528	.24763	.24520	.20273	.30081	1.00000
DISCI1	-.01432	.30242	.03255	.19680	.37461	.28121	.40644
HONEST1	.22174	.22174	-.05077	.00417	-.10591	.10821	.08115
VALUE1	.01018	.01018	.33144	.14107	-.03729	-.07395	.27255

	DISCI1	HONEST1	VALUE1
DISCI1	1.00000		
HONEST1	.07361	1.00000	
VALUE1	.05577	.47343	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .52409

Bartlett Test of Sphericity = 124.44689, Significance = .00000

There are 52 (57.8%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	ACCNT1	CRED1	CHARIS1	BRDEXP1	DRIVE1
ACCNT1	.60487				
CRED1	-.23912	.60961			
CHARIS1	-.07162	.22182	.63259		
BRDEXP1	.15334	-.01637	-.11619	.74953	
DRIVE1	.05287	-.14622	-.10035	-.12571	.70317
DESIRE1	-.16261	.08281	-.07666	-.14426	-.14773
ENTHU1	-.23333	.05689	-.03182	-.10107	.00438
DISCI1	.18767	-.18694	.00141	.01401	-.13542
HONEST1	-.10803	-.06209	.11750	-.01514	.09676
VALUE1	.08784	-.04418	-.22015	-.02661	.01953

	DESIRE1	ENTHU1	DISCI1	HONEST1	VALUE1
DESIRE1	.66846				
ENTHU1	-.05892	.59215			
DISCI1	-.10274	-.24032	.62439		
HONEST1	-.13463	.09970	-.04895	.62496	
VALUE1	.15016	-.16179	.03847	-.31924	.54988

Anti-Image Correlation Matrix:

	ACCNT1	CRED1	CHARIS1	BRDEXP1	DRIVE1	DESIRE1	ENTHU1
ACCNT1	.38122						
CRED1	-.39378	.47846					
CHARIS1	-.11578	.35720	.53732				
BRDEXP1	.22773	-.02422	-.16874	.69958			
DRIVE1	.08107	-.22333	-.15047	-.17316	.68046		
DESIRE1	-.25573	.12973	-.11789	-.20380	-.21548	.60132	
ENTHU1	-.38987	.09468	-.05199	-.15170	.00679	-.09365	.57155
DISCI1	.30538	-.30300	.00225	.02048	-.20437	-.15903	-.39523
HONEST1	-.17570	-.10059	.18688	-.02212	.14597	-.20829	.16388
VALUE1	.15232	-.07630	-.37327	-.04145	.03140	.24767	-.28352

	DISCI1	HONEST1	VALUE1
DISCI1	.55583		
HONEST1	-.07836	.43339	
VALUE1	.06566	-.54458	.41668

Measures of sampling adequacy (MSA) are printed on the diagonal.
Extraction 1 for Analysis 1, Principal-Components Analysis (PC)
PC Extracted 4 factors.
Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.
Varimax converged in 7 iterations.
Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
ACCNT1	1.00000	*	1	2.45430	24.5	24.5
CRED1	1.00000	*	2	1.74141	17.4	42.0
CHARIS1	1.00000	*	3	1.55527	15.6	57.5
BRDEXP1	1.00000	*	4	1.07404	10.7	68.3
DRIVE1	1.00000	*	5	.82484	8.2	76.5
DESIRE1	1.00000	*	6	.67985	6.8	83.3
ENTHU1	1.00000	*	7	.62629	6.3	89.6
DISCI1	1.00000	*	8	.43728	4.4	93.9
HONEST1	1.00000	*	9	.34399	3.4	97.4
VALUE1	1.00000	*	10	.26273	2.6	100.0

PC Extracted 4 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
ENTHU1	.71518	.03932	.10934	-.19643
DISCI1	.63371	.09914	-.30050	.41027
DESIRE1	.62820	-.02922	-.23813	-.39066
DRIVE1	.57438	-.18172	-.45474	.20286
BRDEXP1	.53037	-.46900	-.02352	.15818
CRED1	.28868	.73169	-.22832	.27155
CHARIS1	.39577	-.61046	.35295	-.25215
VALUE1	.34549	-.01465	.80212	.27478
HONEST1	.27005	.46244	.60360	.19976
ACCNT1	.32113	.59506	.06722	-.62899

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
ACCNT1	.85736	*	1	2.45430	24.5	24.5
CRED1	.74457	*	2	1.74141	17.4	42.0
CHARIS1	.71745	*	3	1.55527	15.6	57.5
BRDEXP1	.52683	*	4	1.07404	10.7	68.3
DRIVE1	.61088	*				
DESIRE1	.60480	*				
ENTHU1	.56357	*				
DISCI1	.67004	*				
HONEST1	.09103	*				
VALUE1	.83849	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 7 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
DISCI1	.77240	-.22637	.12942	.07374
DRIVE1	.75704	.01958	-.16710	.09727
BRDEXP1	.58015	.42784	.08446	-.00843
CHARIS1	.16309	.79525	.17280	.16902
CRED1	.28744	-.75571	.19825	.22703
VALUE1	.04951	.26106	.87519	-.04388
HONEST1	-.05564	-.20854	.78787	.15395
ACCNT1	-.19026	-.23623	.10570	.86844
DESIRE1	.40769	.16529	-.13334	.62729
ENTHU1	.40002	.17959	.27136	.54559

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	.75896	.15547	.33241	.53788
FACTOR 2	-.20569	-.86348	.27113	.37226
FACTOR 3	-.42313	.35377	.83390	-.02056
FACTOR 4	.45015	-.32415	.34729	-.75610

Factor Analysis of Leadership Identification Variables

Analysis Number 1 Replacement of missing values with the mean

Correlation Matrix:

	INTER	JOFASSI	INDCAP	OPPEXP	PERAPP	SUCPLAN
INTER	1.00000					
JOFASSI	-.03073	1.00000				
INDCAP	.05414	.05427	1.00000			
OPPEXP	.19156	.20118	.28827	1.00000		
PERAPP	.15068	.20558	.38064	.35641	1.00000	
SUCPLAN	.12800	.14871	.20381	.47535	.17684	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .65882

Bartlett Test of Sphericity = 37.94087, Significance = .00092

There are 16 (53.3%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	INTER	JOFASSI	INDCAP	OPPEXP	PERAPP
INTER	.94474				
JOFASSI	.08548	.92459			
INDCAP	.03484	.05315	.81904		
OPPEXP	-.10166	-.09079	-.09827	.66808	
PERAPP	-.09245	-.13826	-.25073	-.15662	.76005
SUCPLAN	-.04321	-.05861	-.06783	-.29484	.02425

	SUCPLAN
SUCPLAN	.76369

Anti-Image Correlation Matrix:

	INTER	JOFASSI	INDCAP	OPPEXP	PERAPP	SUCPLAN
INTER	.66129					
JOFASSI	.09146	.65408				
INDCAP	.03961	.06108	.67718			
OPPEXP	-.12797	-.11552	-.13285	.65859		
PERAPP	-.10910	-.16493	-.31778	-.21979	.66029	
SUCPLAN	-.05087	-.06975	-.08577	-.41278	.03183	.64428

Measures of sampling adequacy (MSA) are printed on the diagonal.
Extraction 1 for Analysis 1, Principal-Components Analysis (PC)
PC Extracted 2 factors.
Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.
Varimax converged in 3 iterations.
Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
INTER	1.00000	*	1	2.09869	35.0	35.0
JOFASSI	1.00000	*	2	1.03279	17.2	52.2
INDCAP	1.00000	*	3	.95694	15.9	68.1
OPPEXP	1.00000	*	4	.85772	14.3	82.4
PERAPP	1.00000	*	5	.57494	9.6	92.0
SUCPLAN	1.00000	*	6	.47892	8.0	100.0

PC Extracted 2 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2
OPPEXP	.78304	.05291
PERAPP	.68002	-.08617
SUCPLAN	.64779	.06210
INDCAP	.59589	-.02032
INTER	.32403	.75226
JOFASSI	.37867	-.67261

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
INTER	.67089	*	1	2.09869	35.0	35.0
JOFASSI	.59580	*	2	1.03279	17.2	52.2
INDCAP	.35550	*				
OPPEXP	.61596	*				
PERAPP	.46986	*				
SUCPLAN	.42348	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 3 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2
OPPEXP	.78317	.05098
PERAPP	.67981	-.08784
SUCPLAN	.64794	.06051
INDCAP	.59584	-.02179
INTER	.32588	.75146
JOFASSI	.37702	-.67354

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2
FACTOR 1	1.00000	-.00246
FACTOR 2	.00246	1.00000

FACTOR ANALYSIS OF LEADERSHIP DEVELOPMENT VARIABLES

Analysis Number 1 Replacement of missing values with the mean

Correlation Matrix:

	JOBEXP	PRACT	SPEPROJ	NATURAL	COACH	ROLE	INSTRUCT
JOBEXP	1.00000						
PRACT	.27475	1.00000					
SPEPROJ	.30540	.30147	1.00000				
NATURAL	-.19656	.08354	.06143	1.00000			
COACH	.26817	.22419	.25130	.38706	1.00000		
ROLE	.15857	.00877	.03826	.09109	.28663	1.00000	
INSTRUCT	.28751	.38747	36618	.14779	.05871	.03323	1.00000
APPRAISA	.26032	.26945	.37464	-.02885	.00133	-.11230	.50980
FEEDBACK	.09968	.21438	28655	-.09717	.07614	-.08007	.41208
REWARD	.30622	-.01517	.01517	-.11190	.02067	.02249	.06758
REENFORC	.19072	.26548	.28735	.26848	.30740	.19959	.29962
DEGREE	.07549	-.04213	.16488	.03493	-.07136	.07206	.31648
RESIDE	.05293	.24296	.20558	.05621	-.03352	-.07293	.42614
LEADPROG	.35528	.19840	.20683	.22814	.06512	.09931	.36663
LEADCLAS	.26236	.21039	.18895	.22052	.08447	.02696	.33034
PROFESS	.08535	.17714	.29083	.32494	-.02324	.12690	.42199
CIVIC	.08670	.20393	.12861	.35544	-.02206	.03499	.22331

	APPRAISA	FEEDBACK	REWARD	REENFORC	DEGREE	RESIDE	LEADPROG
APPRAISA	1.00000						
FEEDBACK	.44349	1.00000					
REWARD	.31171	.17232	1.00000				
REENFORC	.23475	.18326	.18031	1.00000			
DEGREE	.33360	.15765	.13015	.44341	1.00000		
RESIDE	.53351	.43701	.20816	.44655	.44024	1.00000	
LEADPROG	.31070	.24706	.23012	.31355	.27201	.55733	1.00000
LEADCLAS	.35457	.22177	.27684	.19191	.07074	.43870	.81825
PROFESS	.48238	.27842	.13428	.41642	.37063	.64109	.47964
CIVIC	.26079	.13445	.21496	.45542	.18528	.39852	.22405

	LEADCLAS	PROFESS	CIVIC
LEADCLAS	1.00000		
PROFESS	.48407	1.00000	
CIVIC	.21543	.60023	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .64699
Bartlett Test of Sphericity = 373.21562, Significance = .00000
There are 76 (27.9%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	JOBEXP	PRACT	SPEPROJ	NATURAL	COACH
JOBEXP	.41402				
PRACT	-.06024	.67935			
SPEPROJ	-.04846	-.06108	.67759		
NATURAL	.21421	.01260	.03709	.36674	
COACH	-.18784	-.04517	-.08848	-.24205	.43646
ROLE	.03093	.01491	.06032	.10268	-.17400
INSTRUCT	-.12040	-.13495	-.05062	-.11565	.10357
APPRAISA	-.05970	-.04356	-.09895	-.00029	.00906
FEEDBACK	.10931	.00459	-.06798	.12391	-.11545
REWARD	-.11175	.11484	.09101	.02967	.00477
REENFORC	.00178	-.07801	-.07094	-.00950	-.11400
DEGREE	.01581	.14242	-.00645	.01083	.04720
RESIDE	.13660	-.05099	.06376	.12462	-.07938
LEADPROG	-.13050	.01151	-.01374	-.09758	.08619
LEADCLAS	.06482	-.02143	.01328	.03505	-.05374
PROFESS	-.02829	.05023	-.07803	-.08521	.07852
CIVIC	-.09827	-.06441	.02798	-.14484	.13248

	ROLE	INSTRUCT	APPRAISA	FEEDBACK	REWARD
ROLE	.75043				
INSTRUCT	-.05790	.50925			
APPRAISA	.07360	-.09119	.45170		
FEEDBACK	.06258	-.15217	-.08015	.63141	
REWARD	-.03567	.07765	-.12393	-.06035	.69368
REENFORC	-.06169	-.00997	.05895	.01524	-.05523
DEGREE	-.01323	-.08384	-.08520	.05705	-.02694
RESIDE	.11303	-.03897	-.07748	-.04063	-.01906
LEADPROG	-.06772	.02910	.06030	-.04405	.02912
LEADCLAS	.06015	-.03131	-.05358	.03409	-.08542
PROFESS	-.14124	-.00189	-.05699	-.01470	.07251
CIVIC	.01328	.05427	.02048	-.02979	-.10502

	REENFORC	DEGREE	RESIDE	LEADPROG	LEADCLAS
REENFORC	.48097				
DEGREE	-.17755	.55556			
RESIDE	-.06433	-.03833	.28370		
LEADPROG	-.01048	-.06564	-.10473	.18242	
LEADCLAS	.01830	.10644	.05189	-.15789	.23853
PROFESS	.00933	-.04996	-.11083	.03786	-.07823
CIVIC	-.13449	.06732	-.04509	.04612	.01055

	PROFESS	CIVIC
PROFESS	.30073	
CIVIC	-.13374	.44671

Anti-Image Correlation Matrix:

	JOBEXP	PRACT	SPEPROJ	NATURAL	COACH	ROLE	INSTRUCT
JOBEXP	.40691						
PRACT	-.11358	.77117					
SPEPROJ	-.09150	-.09003	.82814				
NATURAL	.54974	.02524	.07441	.32799			
COACH	-.44189	-.08296	-.16271	-.60499	.31690		
ROLE	.05548	.02089	.08460	.19572	-.30402	.35630	
INSTRUCT	-.26222	-.22944	-.08617	-.26760	.21969	-.09366	.78830
APPRAISA	-.13805	-.07863	-.17886	-.00071	.02039	.12642	-.19013
FEEDBACK	.21379	.00701	-.10393	.25751	-.21992	.09092	-.26836
REWARD	-.20852	.16729	.13275	.05882	.00866	-.04944	.13064
REENFORC	.00398	-.13647	-.12427	-.02262	-.24881	-.10268	-.02015
DEGREE	.03296	.23182	-.01051	.02399	.09585	-.02049	-.15763
RESIDE	.39858	-.11616	.14541	.38633	-.22558	.24497	-.10252
LEADPROG	-.47485	.03269	-.03907	-.37725	.30545	-.18303	.09548
LEADCLAS	.20627	-.05323	.03303	.11850	-.16655	.14218	-.08984
PROFESS	-.08016	.11112	-.17286	-.25658	.21674	-.29732	-.00483
CIVIC	-.22851	-.11692	.05086	-.35785	.30003	.02293	.11378

	APPRAISA	FEEDBACK	REWARD	REENFORC	DEGREE	RESIDE	LEADPROG
APPRAISA	.83126						
FEEDBACK	-.15008	.75367					
REWARD	-.22139	-.09119	.64140				
REENFORC	.12648	.02765	-.09562	.80384			
DEGREE	-.17008	.09632	-.04340	-.34348	.69202		
RESIDE	-.21645	-.09599	-.04296	-.17415	-.09654	.70083	
LEADPROG	.21008	-.12979	.08187	-.03539	-.20619	-.46037	.58516
LEADCLAS	-.16323	.08783	-.20999	.05404	.29240	.19948	-.75692
PROFESS	-.15464	-.03375	.15875	.02452	-.12223	-.37943	.16165
CIVIC	.04559	-.05608	-.18866	-.29015	.13514	-.12665	.16158

	LEADCLAS	PROFESS	CIVIC
LEADCLAS	.64051		
PROFESS	-.29207	.76545	
CIVIC	.03233	-.36488	.66560

Measures of sampling adequacy (MSA) are printed on the diagonal.
Extraction 1 for Analysis 1, Principal-Components Analysis (PC)
PC Extracted 5 factors.
Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.
Varimax converged in 9 iterations.
Analysis Number 1 Replacement of missing values with the mean

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
JOBEXP	1.00000	*	1	4.98320	29.3	29.3
PRACT	1.00000	*	2	1.80433	10.6	39.9
SPEPROJ	1.00000	*	3	1.66409	9.8	49.7
NATURAL	1.00000	*	4	1.35678	8.0	57.7
COACH	1.00000	*	5	1.23383	7.3	65.0
ROLE	1.00000	*	6	.97456	5.7	70.7
INSTRUCT	1.00000	*	7	.83660	4.9	75.6
APPRAISA	1.00000	*	8	.75287	4.4	80.0
FEEDBACK	1.00000	*	9	.71346	4.2	84.2
REWARD	1.00000	*	10	.61342	3.6	87.8
REENFORC	1.00000	*	11	.49799	2.9	90.8
DEGREE	1.00000	*	12	.44124	2.6	93.4
RESIDE	1.00000	*	13	.33383	2.0	95.3
LEADPROG	1.00000	*	14	.28884	1.7	97.0
LEADCLAS	1.00000	*	15	.22459	1.3	98.4
PROFESS	1.00000	*	16	.19542	1.1	99.5
CIVIC	1.00000	*	17	.08495	.5	100.0

PC Extracted 5 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
PROFESS	.76624	-.01422	-.38882	-.01037	-.03088
RESIDE	.76488	-.28506	-.22844	-.04492	-.00464
LEADPROG	.71233	.01086	-.01498	.50318	-.22307
APPRAISA	.68516	-.35158	.17162	-.15875	.01453
INSTRUCT	.67113	-.07015	.17687	-.27437	-.11850
LEADCLAS	.65007	-.00610	.01615	.54804	-.39632
REENFORC	.61723	.33100	-.16521	-.16357	.38261
CIVIC	.54697	.11826	-.44224	-.05375	.07641
FEEDBACK	.50707	-.30912	.23383	-.26873	-.08764
SPEPROJ	.48792	.14366	.37606	-.36089	-.02449
PRACT	.43195	.20458	.35775	-.29604	-.31109
COACH	.18540	.74317	.30897	-.06257	.02048
NATURAL	.26053	.61683	-.48289	-.03279	-.31592
ROLE	.09510	.53601	.05537	.19302	.42269
JOBEXP	.38578	.12656	.65394	.28162	.21475
REWARD	.33613	-.21127	.16732	.48223	.36982
DEGREE	.47556	-.17843	-.25534	-.16370	.54103

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
JOBEXP	.71791	*	1	4.98320	29.3	29.3
PRACT	.54083	*	2	1.80433	10.6	39.9
SPEPROJ	.53096	*	3	1.66409	9.8	49.7
NATURAL	.78242	*	4	1.35678	8.0	57.7
COACH	.68648	*	5	1.23383	7.3	65.0
ROLE	.51534	*				
INSTRUCT	.57594	*				
APPRAISA	.64791	*				
FEEDBACK	.48726	*				
REWARD	.55493	*				
REENFORC	.69097	*				
DEGREE	.64270	*				
RESIDE	.72052	*				
LEADPROG	.81071	*				
LEADCLAS	.88031	*				
PROFESS	.73957	*				
CIVIC	.51747	*				

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 9 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
DEGREE	.74998	.08684	-.09683	.00364	.25159
PROFESS	.68319	.23820	.43597	-.03652	-.15709
REENFORC	.66776	.23053	.05223	.43410	-.02751
CIVIC	.63232	.07148	.24506	.06986	-.21816
RESIDE	.62729	.35272	.38541	-.22492	.05894
SPEPROJ	.12091	.68072	-.00746	.22920	.01929
PRACT	-.06012	.67597	.14077	.17712	-.17057
INSTRUCT	.30290	.66552	.20272	-.01086	.00803
FEEDBACK	.20118	.60539	.09889	-.21247	.15924
APPRAISA	.37900	.58797	.22876	-.19269	.26288
LEADCLAS	.08888	.18590	.91472	.01414	.03058
LEADPROG	.23756	.18187	.83941	.08380	.09778
COACH	-.10175	.26251	.03709	.75496	-.18942
ROLE	.15775	-.16324	.00147	.67309	.10370
NATURAL	.24812	-.04963	.29505	.32160	-.72657
REWARD	.21329	-.06611	.34253	.10214	.61425
JOBEXP	-.10637	.36146	.27220	.45275	.54485

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
FACTOR 1	.60893	.57060	.53094	.12338	.08060
FACTOR 2	-.07352	-.05631	.01439	.87349	-.47774
FACTOR 3	-.58848	.54958	-.05857	.27299	.52316
FACTOR 4	-.18765	-.54650	.71391	.13963	.37009
FACTOR 5	.49221	-.26559	-.45255	.35746	.59549

Appendix I
Formulas used to compute factor scores

Contribution to Leadership Effectiveness Factors

```
AROLE=((WORK1+ACCESS1+LISTEN1+LEAD1)/4)
AWRKOTH=((COMMUN1+INTRST1+WRKOTH1)/3)
ADEVL=((MENTOR1+DEVEL1)/2)
ATASK=((COORD1+DELEG1+RISK1)/3)
ACARE=((QUAL1+EMPATH1)/2)
AEXP=((FINEXP1+CONTEXP1)/2).
AKNOW=((KNOWORG1+KNOWENV1)/2).
AINTEL=((INTEL1+CONFI1)/2).
ADESI=((DISCI1+DRIVE1+DESIRE1+ENTHU1)/4).
AREPU=((ACCNT1+HONEST1+CRED1)/3).
```

Degree Exhibited Factor Scores

```
BROLE=((WORK2+ACCESS2+LISTEN2+LEAD2)/4).
BWRKOTH=((COMMUN2+INTRST2+WRKOTH2)/3).
BDEVL=((MENTOR2+DEVEL2)/2).
BTASK=((COORD2+DELEG2+RISK2)/3).
BCARE=((QUAL2+EMPATH2)/2).
BEXP=((FINEXP2+CONTEXP2)/2).
BKNOW=((KNOWORG2+KNOWENV2)/2).
BINTEL=((INTEL2+CONFI2)/2).
BDESI=((DISCI2+DRIVE2+DESIRE2+ENTHU2)/4).
BREPU=((ACCNT2+HONEST2+CRED2)/3).
```

Identification Methods Factor Scores

```
IDEXP=((OPPEXP+PERAPP+SUCPLAN+INDCAP)/4).
```

Developmental Methods Factor Scores

```
DVOUT=((DEGREE+PROFESS+REENFORC+CIVIC+RESIDE)/5).
DVTRAIN=((LEADCLAS+LEADPROG)/2).
DVROLE=((COACH+ROLE)/2).
DVEXP=((PRACT+SPEPROJ)/2).
DVFEED=((FEEDBACK+APPRAISA)/2).
DVGUIDE=((JOBEXP+REWARD+NATURAL)/3).
```

Procedure to Compute Disparity Score
(difference between desired and observed scores)

```
COMPUTE DINTEL=(AINTEL-BINTEL).
COMPUTE DJUDGE=(JUDGE1-JUDGE2).
COMPUTE DDESI=(ADESI-BDESI).
COMPUTE DREPU=(AREPU-BREPU).
COMPUTE DVALUE=(VALUE1-VALUE2).
COMPUTE DCHARIS=(CHARIS1-CHARIS2).
COMPUTE DVISION=(VISION1-VISION2).
COMPUTE DROLE=(AROLE-BROLE).
COMPUTE DCARE=(ACARE-BCARE).
COMPUTE DWRKOTH=(AWRKOTH-BWRKOTH).
COMPUTE DDEVEL=(ADEVL-BDEVL).
COMPUTE DTASK=(ATASK-BTASK).
COMPUTE DEXP=(AEXP-BEXP).
COMPUTE DFLEET=(FLEET1-FLEET2).
COMPUTE DDOCEXP=(DOCEXP1-DOCEXP2).
COMPUTE DKNOW=(AKNOW-BKNOW).
```